MAY 1924 20 Cents

THE FLOWER GROWER

For all who grow flowers

ESTABLISHED 1914

Volume XI Calcium, N. Y. May 1924 Number 5

Lilacs from the gardens of
Mrs. Durrant, Plainfield, N. J.

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We have had a very satisfactory "Glad" season. Thanks to the liberal patronage of FLOWER GROWER readers.

No more Bulbs to offer until Fall, when we will be better prepared than ever to supply you with our usual high quality Bulbs at reasonable prices.

Time now to turn your thoughts to

PEONIES and IRISES

Our new list, (out in July), includes most of the worthwhile varieties. *Will be glad to mail you a copy.*

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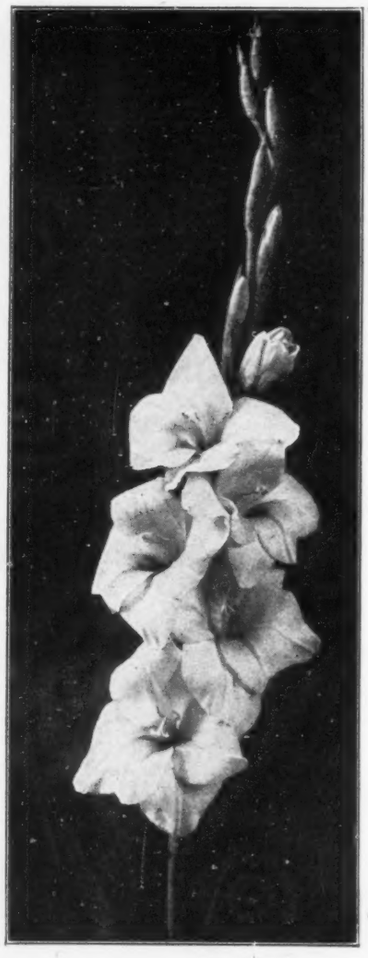

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COLOR, creamy white with rich cream spots in throat on three lower petals, these spots overlaid with dainty featherings of American Beauty pink. The back of the petals show a tint of very delicate pink. Blooms measure 4½ to 5 inches in diameter. This is a very remarkable variety, blooms very early on good stiff stems 4 to 4½ feet tall. **Elora** is certainly queen of all the early varieties. It is very prolific in bulblets, and a great favorite with florists because of a shade suitable for all purposes. In flat bouquets for funeral work, or in baskets, it makes up most beautiful, and especially good among other pieces made of *America* or *Le Marechal Foch*, and a welcome relief from too much of one color. It also goes well in mixed vases or baskets.

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W. B. DAVIS - Aurora, Ill.

THE FLOWER GROWER
For all who grow Flowers
ESTABLISHED 1914

FOR BOTH AMATEUR AND PROFESSIONAL GROWERS OF OUTDOOR SUMMER-FLOWERING PLANTS
Entered as second-class matter March 31, 1914, at post office at Calcium, N. Y., under act of March 3, 1879.

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Floral Notes and Pictures from "The Blossom Shop"

BY LENA McVEIGH, (Virginia)

I'VE only belonged to THE FLOWER GROWER'S family a few months, but am already sorry for myself when I think of what I've been missing.

I wonder if any of you flower lovers will be interested in some of my favorites and my success in growing them. For instance, our house fronts the north and is on a decided knoll and for years I could find nothing altogether satisfactory for this front border. Finally I wrote to a prominent eastern house and stated my dilemma. Promptly came the advice —why not try the hardy Hydrangea, Arborescens *Grandiflora*?

I immediately ordered eighteen and was most delighted to find them such splendid, sturdy little shrubs when they came. In preparing the border for them, I had the man dig deep and enrich with plenty of well rotted manure, and then I planted them out most carefully. The situation must have been ideal, and the April planting just right, for they responded by leaps and bounds and in June were a wonderful sight, as the illustration shows, and were veritably "Hills of Snow." They have been the envy and admiration of all visitors each year.

Thanks to George Simpson's article "Tuberous Begonias" in January FLOWER GROWER, I think I can make my Hydrangea border more attractive by putting a row of red Begonias in front of the Hydrangeas.

NOW step around the corner and look at my *Silver Moon* Rose on the little west porch, and I know you'll want one at once. It is the most rampant grower and freest bloomer I've ever had the pleasure of growing. The buds are long and pointed with long stiff stems and the full bloom Roses are the most perfect imaginable. These Roses and buds with their beautiful glossy foliage are exceptionally fine for cut flowers. A vase of them is indeed a thing of beauty that lasts for several days. If you haven't a *Silver Moon* Rose, get

Porch Planting at "The Blossom Shop"—Hydrangea Arborescens in left foreground

Silver Moon Rose and some Poultry

one this season and you'll never be satisfied to be without one.

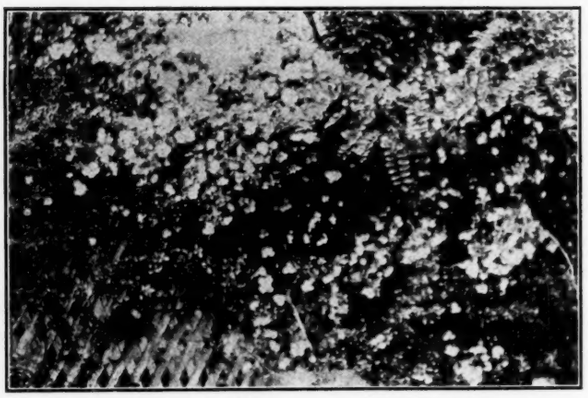
Let us wander to the East yard now and admire the *Gardenia* Roses on the lattice. These have been the joy of my heart for many years. The mingling of the yellow buds and the great full blown blossoms which are white and very fragrant is a lovely sight. The *Gardenia*, like the *Silver Moon* Rose, is a rapid, strong grower, and has beautiful insect proof foliage.

Next to the *Gardenia* on the lattice is a pink Rambler which doesn't finish blooming before the *Gardenia* begins and together they make a lovely picture.

NOW a peep at my yellow Rambler and *Soupert* Rose, with Peonies of red, white and pink, and wonderful Iris in the foreground. Is it any wonder that I find it hard to stay in the house when the glad Springtime comes, making pictures so beautiful wherever I chance to look?

My part in making the pictures is to supply plenty of well rotted manure in the Fall, and bone meal in the Spring, and Mother Nature does the rest. Then I take my Kodak and start out to preserve the flowers to brighten the shut in winter days.

Maybe some day we will continue our walk and see the Peony beds, the Jonquils and the Narcissus and I'll tell you as we journey of the flowers we ship each Spring to the New York florists and how "The Blossom Shop" is growing year by year.

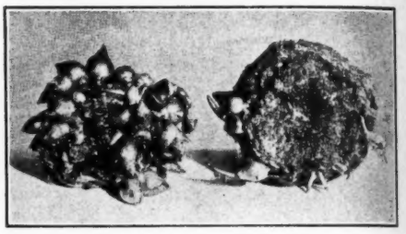


Gardenia Rose on lattice

Yellow Rambler with Peonies and Iris in foreground

The Propagation of the Hyacinth

OF THE vast number of people who grow the Hyacinth annually, how many are there who know anything of its increase or, knowing it, have tried the experiment of growing their own bulbs? I think it is well worth trying if only for the added pleasure a genuinely home-grown flower always gives. Those who grow or handle the Hyacinth for sale almost invariably state in their instructions that, having once flowered, the bulbs are of no further use and no doubt this is true of those grown in water or fibre, but as regards those grown in good compost this, I think, is hardly correct, for if they can be finished off with the same care as the Freesia they will give a good account of themselves in the open ground and will continue to do so for several years. If the grower is of an experimental turn of mind and has the necessary patience, it will be found that the Hyacinth can be increased more quickly than most bulbs. Any bulbs which have been forced and ripened may have the base of the



bulb cut clean away and then be laid on a dry shelf. With most bulbs this would be absolutely fatal, but not so with the Hyacinth. The cut will heal quickly and from the base of each scale a varying number of tiny bulbs will be produced according to the amount of nourishment available in the scale on which they feed and grow until nothing is left of the scale but a thin dry skin.

If it is desired to carry the experiment further, the bulblets may be dibbled into pans or boxes of rich open compost and grown on thus for a season, when they will be large enough for a nursery bed in the open. If generously treated they soon reach flowering size. If the first small spikes of bloom are picked off the bulbs gain in strength for the next season. I enclose a photograph of two bulbs showing the great difference in natural and artificial increase. The one on the left had its base cut away in the early Summer and was laid on a greenhouse shelf. It produced thirty-eight young bulbs, the largest being about one-half inch in diameter; the other bulb shows the natural increase. The Dutch growers are said to propagate by means of cuts made partly through the bulb near the base, which is then planted in the open ground, but apparently not much is known here of their methods.—H. C. W., (In *The Garden*, English)

Odds and Ends

BY R·S·STURTEVANT

Some Small Flowering Trees

WITH the increased interest in gardening we shall find less over-planting of the small lot. One cannot enjoy forest trees and a garden in the same restricted area and yet a certain amount of height is a necessity, sometimes as a screen, to hide an unpleasing view, sometimes just for a point of interest to break the monotony of shrubs or open garden. Fortunately we can omit the gigantic Firs and Spruces, Elms and Maples and perchance gain in effect of flower or fruit as well as moderate the height and spread of our tree denisons. The following are but a few of our small decorative trees.

THE DOGWOODS

Cornus florida, the Flowering Dogwood, is by far the most familiar of the familiar with its showy white or rose-colored bracts. It is found from southern Maine, Ontario and Minnesota south to Texas and Florida and in the open woods attains often a height of thirty to forty feet but as a specimen on the small place it forms a round-headed small tree, beautiful in flower, with good foliage and fruit, fine autumn color and fascinating in the perfection of its shapely winter buds. To the north particularly in rich soil new plants often do not ripen their wood properly in the Autumn and the early frosts catch the flower buds. It is well, therefore, to plant in a site sheltered from the eastern sun. From the Western Coast comes an even handsomer cornel, C. nuttalli, a larger, less hardy tree, but with showy bracts often six inches across. I do not ever remember seeing this listed in catalogues but in England it is considered the noblest of the family.

Cornus kousa is beginning to be fairly well-known, it is apparently almost as hardy as C. florida and its more pointed bracts are fully as lovely. In youth it is a rather fastigiate tree-shrub but with age develops that horizontality that we find in so many of the Japanese trees. C. capitata from the Himalayas is partially evergreen and hardy only in the south but forms a large handsome tree with pale yellow bracts.

To quite another group, with flowers in June in flattish cymes belong the Chinese C. controversa and our own native C. alternifolia. With far less beauty of bloom these two form interesting tiers of branches and afford a light and graceful altitude in the shrubbery. It is this interest of growth that makes them worthy of a place. All the Dogwoods tend to become shrubs rather than trees unless judiciously restrained and this is particularly the case with C. mas, the Cornelian Cherry, which forms a smoothly rounded, low branched tree to twenty-five feet. The small yellow flowers appear in March before the leaves and against an evergreen background are a cheering sight. C. officinalis from Japan and C. sessifolilis from Carolina are of similar type.

THE LABURNUMS

The purple L. adami, one of the few examples of graft hybrids among shrubs, is rarely seen but the Golden Rain trees are things of beauty with their pendulous golden racemes and light green foliage. Two species are planted, L. vulgare that forms a low-branched spreading tree and blooms in late May, and L. alpinum, the Scotch Laburnum with longer racemes. This last blooms two or three weeks later and forms a more shapely tree and above all is more hardy though both are apt to thrive about Boston. They are suited to lawn rather than shrubbery planting and, if my memory serves me rightly, were used in old times for pleached alleys. Planted near a Wistaria there is a fascinating harmony of form and contrast of color.

THE LILACS

Unfortunately the tree Lilacs have not as showy trusses as our familiar Syringas and are rather slow growing. S. japonica is the most common and forms a symmetrical tree to thirty feet with glossy rich foliage and less handsome small whitish trusses in July; this last its most valuable trait. S. pekinensis bears the same relation to S. japonica as the Persian Lilac does to the common, in other words it is of spreading graceful habit rather than stiffly erect. These two exhaust the number of tree Lilacs but fortunately the larger growing forms of S. vulgaris, particularly the variety *alba*, may be trained into handsome small trees for formal garden use with clean trunks and broadly pyramidal heads. The white Lilac with its rather fastigiate growth is particularly handsome for this effect and with but little attention will develop a slender tree to twenty-five feet.

ODD THINGS

The Yellow-wood, Cladrastis tinctoria becomes almost a large tree and with its handsome pinnate leaves and creamy panicles makes an attractive feature of a large lawn. In the open in Tennessee it makes wide-spreading rounded head.

The Fringe-tree, Chionanthus, also has fine foliage and though we consider it more as a large bush it may form a shapely tree fairly hidden in June by the profusion of its creamy pendent flowers.

The Exochorda grandiflora, the Pearlbush, and Halesia, the Silverbell, are both white and bloom in May. The first particularly is shrub-like though I find it difficult to keep the Halesia to a single trunk and their beauty of flower merits as careful placing as one would use for a tree.

The Judas-tree, Cercis, is one of the things that bloom before the leaves appear and with its clouds of magenta-hued small flowers is most attractive. Unfortunately it is rather slow growing and as it does not particularly appreciate transplanting it is best to start with a small plant. Usually the tree is picturesque rather than symmetrical and it needs a background for the best effect.

Cercidithyllum on the contrary is dense, symmetrical and rapid in growth, a splendid filler and good screen though fairly wide-spreading. It is a cleanly tree above all, with no marked beauty of flower.

A mere list of small flowering trees with not a mention of the many beautiful flowering Crabs, Cherries, Hawthorns, and Magnolias, more usual on the whole and perhaps for that reason is less needy of special attention.

Note:—"Standardized Plant Names" followed.

Lily pool and Bird bath with Goldfish, grounds of James A. Kyle, (Ontario)

The Rose

Experimenting with Rose Varieties

BY J. HORACE McFARLAND, Editor *American Rose Annual*

ANY real garden lover will admit the joy of experimenting with new varieties of anything he cares for. What is comparable to the expectation with which one regards the unfolding bud of some flower or plant he has not before handled, and which is now opening in his own garden? Even if the variety is a disappointment or if the effort fails, he has had the joy of anticipation. As that wisest of American horticulturists, Dr. Bailey, of Cornell, puts it: "Even if he fails, he has tried, and the satisfaction of the trial is his."

To my way of thinking, the ambitious Rose lover starts with what he knows will do well, and then he adds to that number according to his preferences; guided, of course, by what his friends tell him, if he has garden friends; or, less preferably, by what the catalogues say. It is a rueful fact that as yet, in America, the catalogues do not say all they ought to say for the glory of the Rose and the information of the Rose grower. Merits are quite likely to be emphasized, defects are quite likely to be forgotten. If, and when, some Rose tradesman shall see the wisdom of telling all the facts, I predict for him a trade in quantity and quality pleasant to contemplate. So far as I know, the only Rose tradesman in the world who tells the whole of the facts as he knows them and can learn of them from his customers, is Richard Murrell, the English grower; who has also the temerity to group similar varieties, saying they are similar, and describing just one of them, with a statement of all its difficulties, as well as all its good qualities.

BUT in selecting Roses for the basic success, reference can readily be made to the referendum of the American Rose Society, conducted in the two years 1922 and 1923; and rounding up in the 1924 *American Rose Annual*, into selections for seven climatic zones, of the favorite twelve bush Roses, and the favorite twelve Climbing Roses.

These zones have been chosen with care to associate similar conditions of altitude, temperature and humidity, and while they are far from ideal, they do at least afford a safe basis to begin on. I therefore commend most heartily as the basis of the Rose garden the varieties thus determined.

With a safe dozen bush Roses and a safe dozen Climbing Roses assured, what then?

My front name happens to be John, and therefore I can appreciate the advice of the Puritan maiden Priscilla to her chuckle-headed suitor when she said to Alden, "Why don't you speak for yourself, John?" So I speak to tell of the 1924 wooings of the Queen of Flowers that I have undertaken.

I want to pursue fragrance in Roses as never before. I have watched friends who visit my Rose garden look with delight at an opening Rose, and then immediately and impulsively lean forward to inhale its expected odor. If, as is all too frequently the case, there is either no odor or but a faint, indefinite scent, a shade of disappointment always crosses the countenance of the visitor. That great German Rose, *Frau Karl Druschki*, rather illustrates the fall-down of the Teutonic race, in its basic lack, as well as in its good qualities. It looks as if it ought to have a good odor, but it does not have.

SO I am going to find out about fragrance; and not only that the Rose is fragrant, but what sort of fragrance it has. Any ordinary observer will have noticed the great difference in Rose fragrance, but it has remained for one devoted rosarian to actually set aside time to study the problem of Rose fragrance. Major C. C. Hurst, of the great Burbage Nurseries of England, wrote me in 1923 that he was spending a year at Cambridge studying Rose biology, and particularly Rose fragrance. He says: "It is of course entirely a question of gland secretions. It is obvious that the different species have different gland types which yield the various scents from the petals, leaves, sepals, and pedicels. The Tea, Musk, 'old rose,' Damask, violet, nutmeg, fruity and foetid scents, are from glands on the petals; and the balsam, turpentine, Reinette and sweetbrier scents are from glands on leaves, sepals and pedicels; but as to what the secretions really are I have not the remotest idea."

But Major Hurst is after this information, and in just the paragraph above he has given each of us a hint as to what to observe.

Who does not remember the disappointment following the thrust of the nose into one of the modern greenhouse Roses, giving him only a faint and somewhat stale suggestion either of tobacco smoke or of packed flowers? Who does not, on the contrary, recall the exaltation of spirit which follows the inhalation of the fragrance from one of the old Hybrid Perpetual Roses early on a June morning?

It is my thought, therefore, to try to classify fragrance, and I shall use Major Hurst's basis as, in a sense, fragrance standards.

THEN, too, I want this year to know more, if I can, about the obvious approach to a dependable yellow Rose for the major part of the country. If we could have a yellow Rose as fine as *Radiance*, and if we could add to this a salmon or apricot Rose as fine as *Radiance*, I think we could use the blue pencil on about a thousand "me-too" Rose varieties with great success.

When I speak of the fineness of *Radiance* I do not stop with the flower alone, or its delicious odor. I take into account its adaptability; for as things stand today, it, with its sports, is the one best bet in all of America, north and south, east and west, and in all of Australia from which we have yet heard.

Observation at the flower shows indicates, just as garden observations indicate, the liking Rose observers have for yellow, copper and salmon shades. *Mrs. Calvin Coolidge*, for example, is a "yellow" sport of *Ophelia*, and is not at all yellow, but rather an intensification of the old Tea Rose, *Safrano*. (As I sense the color it is nearly identical with the climber, *Emily Gray*.) It has its thousands of admirers in consequence. *Souvenir de Claudius Pernet*, capricious, difficult, uncertain, and is not to be commended as an outdoor garden Rose in America as yet, even though the clear, definite yellow gets the crowds at the shows.

If by patiently and persistently planting all the Roses that seem to sound good, read from the vociferous descriptions that the catalogues yet inflict upon us, I can get a step or two in either of these two directions, I shall feel that the Summer of 1924 has been well spent in my Rose garden.

THE FLOWER GROWER circle is an acute circle. I have had astonishing responses to requests made. I venture to add to these requests the ideals above mentioned. Let me have as much data as anyone cares to send on fragrance as observed in its different qualities; and on the approach to a yellow Rose, and a copper-colored Rose, of the *Radiance* quality and dependability. All I get I will collate into generally useful form for the glory of the Rose.

Longevity of Seeds

I should like to add a little contribution to the notes you have received on long life or fertility of seeds. Eighteen years ago I gathered in Jamaica a few seeds or beans of Albizzia lebbek, or Woman's Tongue Tree. Last year, in a desk sent me from my home in the east, I found the seed, soaked them and planted them, and one seed germinated and developed into quite an ornamental plant by Fall. It dropped every leaf during the Winter but is now sending out new leaves and seems determined to enjoy another Summer of hot sunshine.

MRS. C. G. KEENAN, (Calif.)

Month by Month with the Flowers
May

BY CHARLOTTE S. ALLISON, (Tennessee)

FLOWER of the month—Hawthorn. The month of promise.

Variety is the spice of the garden.

The Hawthorn is commonly called May, from the season of its flowering.

By the fifteenth of May, seeds of all annuals ought to be in the ground.

Splendid groupings of flowers for the small garden may be had by combining Coreopsis with Delphinium; Heliotrope with Mignonette; English Daisy with Forget-me-nots; Chelone with Shasta Daisies; Golden Flax with Delphinium; California Poppies with Heliotrope; Shasta Daisies with Coreopsis.

While one's thoughts are with the seedlings and the early spring flowers; the Palms, Rubber Plants, and Ferns must not be neglected. Do not let them suffer for lack of water. A thorough soaking in a tub of water once a week will benefit them more than a light sprinkling every day.

A plan by means of which bloom may be had at all times in the porch boxes, is to sink pots of blooming plants in the earth between the plants already growing in the boxes. As soon as the blooming period is over these pots may be removed and other plants in full bloom take their place.

Do not have a flower garden like every other one in the whole neighborhood. Try something new; arrange your plants in different combinations; study new color schemes; and above all do not let the garden sink to a dead level of monotony and uniformity. Better a tangled wilderness of blossoms than a mechanical, machine-cut effect in flower beds.

An excellent plant for the cemetery is the Ajuga reptans, or Bugle Flower. It is low, dense and creeping in habit; with a profusion of dark handsome leaves; thrives in any kind of soil; and may be well used as a carpet plant. The variety known as Ajuga reptans rubra bears whorls of deep purplish blue flowers which appear in May.

The Nasturtiums should be stout, healthy plants by this time, if the seed got in the ground early; and, by the latter part of the month, should yield a profusion of gorgeous glowing blossoms and continue in uninterrupted splendor until cut down by frost. The Nasturtium is not only an attractive flower, but it has a food value also, for it is a fine salad plant, and the seeds are used in making pickle and preserves.

The round yellow flowers of the Trollius or Globe Flower brighten the garden borders in the latter days of May. Although this plant grows nicely in ordinary garden soil, it is especially flourishing in wet, sunken spots, or by side of water. The Globe Flower can be grown from seed, but it is a rather unsatisfactory method because such plants, as a rule, are tardy in coming into bloom. It is better to buy established plants.

The English Daisy, that "wee, modest, crimson-tipped flower" about which the poet sings, beautifies our garden beds with little pompons or flower buttons of bright rose and white, in the early days of May, if the plants were started the preceding Fall. The plants will flower the same season if the seed is sown early, though the custom usually followed is to sow the seed in the Fall, and winter the plants in cold frames, thereby giving one earlier blooms. An ideal combination is to plant English Daisies with Tulips and Pansies.

The seedlings of the Hardy Primroses may be safely transplanted outdoors in May; or the seed may be sown at this time in shaded spots in the garden. Care must be taken in planting the seed that they be just scratched into the surface soil and then firmed down. The soil must be kept moist; this is of the greatest importance for the young plants will die unless they get plenty of water. Little cultivation is needed, as Primroses seem to resent being disturbed, and increase in beauty with every day.

Save all the soot made from burning wood for it is a most excellent fertilizer for both pot plants and those growing in the garden. It may be scattered on the surface of the ground or dug in; though some prefer to put it in a bag placed in a bucket of water to be used once or twice a week in watering the plants. Wood ashes dug in the ground every ten days or as often as desired also make a good fertilizer, though care should be exercised not to bank the ashes about the stems else harm may result.

May is moving time for the plants, from their pots to summer quarters in the garden beds. Care should be shown, when doing this work, to disturb the roots of the plants as little as possible. If a thin knife blade is run around the inside of the pot to loosen the soil from the side, the pot then turned upside down and a smart rap given on the bottom, the ball of earth and roots will come out readily without breaking. Never transplant on a hot sunny day, or when there is a strong wind blowing. Have the hole in the flower bed ready and well soaked with water; slip the ball of roots in place; fill in with dry earth; and the plant is not apt to suffer injury from the change.

To this month belongs the glory of the Hardy Lupines, fairly covered with long spikes of butterfly like flowers, of clear azure blue, white or pink, with attractive foliage of dark green satiny leaves divided like a palm leaf, eight to sixteen leaflets in number. It is one of the most beautiful plants in the herbaceous border. If the flower stalks are cut down, the plants may bloom again in September. They like plenty of moisture and are gross feeders—the ground needing to be enriched each year with plenty of stable manure. The annual varieties of Lupines make showy garden plants and are desirable on account of their rapidity of growth and free flowering qualities. The seed should be sown where plants are to remain. If the blooms are cut as soon as they mature the blooming season is lengthened.

The Poinsettia

May I tell you of a freak of our Poinsettia?

As a plant a little over two feet tall it remained in bloom three months,—November, December and January,—having a flower, or the scarlet petals, 11¾ inches in diameter. Before it dropped all its petals in the middle of February I made three slips or cuttings of the stem besides leaving eight inches of stem on the root. I planted the cuttings in clean sand with a glass considerably larger than a two quart jar over them. They are all growing. But the freak consists in my planting the small end of one cutting in the sand, i. e., wrong end up. And the larger end which is not in the sand has developed roots, and the leaves developed, pointed toward the sand of course.

Upon turning it right end up I found no sign of roots on other end, i. e., the smaller end.

We believe that a Poinsettia is a worth-while plant. Very easy of cultivation and even fool-proof.

REV. MORVIN CUSTER

To Daffodils

Fair Daffodils, we weep to see
You haste away so soon;
As yet, the early-rising sun
Has not attained his noon.
Stay, stay,
Until the hasting day
has run.
But to the even-song;
And, having prayed together, we
Will go with you along.
We have short time to stay as you
We have as short a Spring;
As quick a growth to meet decay
As you or any thing.
We die
As your hours do, and dry
Away.
Like to the Summer's rain;
Or as the pearls of morning's dew,
Ne'er to be found again.

ROBERT HERRICK

The Dahlia

Dahlias and their Culture

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(Continued from April issue)

FOR THE growing of Dahlias, amateurs commonly use either tuberous roots or seeds, although professionals or the more experienced amateurs make use also of green plants grown from cuttings. Unless you have a greenhouse and can root the cuttings in March or April, it is hardly worth while to bother with them.

DECORATIVE DAHLIA, SNOWDRIFT

(Photographed at The New York Botanical Garden)

Dahlia roots are often spoken of as tubers or bulbs, but, strictly speaking, they are neither. They are tuberous roots and we shall refer to them as the roots. Wherever you are, it is time now (May 2) to overhaul your Dahlia roots, if you have not already done so. Those that look all right and are beginning to show eyes or sprouts may perhaps be returned to the places of storage until the best time for planting in your locality arrives. The root-clumps that are of doubtful vitality should be covered with moist earth or sand and kept in a well-lighted, moderately warm place, at least until you are convinced as to whether they are alive or not. When the eyes are well started, you can then divide the clump in such a way that each division has at least one good eye. Beginners sometimes make the mistake of planting a whole clump without division, but this is not only a wicked waste of roots, but the results are not so good as when the clump is properly divided. One shoot is all that is needed for growing and that may be obtained as well from a single root as from a whole cluster of roots. The beginner should remember that no shoot ever grows from the tuberous root itself. All of the eyes are on the crown of the clump, the crown being essentially the base of last year's stalk. A modern Dahlia is the result of a great many crosses or hybridizations and when one plants a seed one never knows just what one is going to get except that it is going to be a Dahlia and not a Sunflower or a cabbage. The flower of a plant grown from a seed may show more or less resemblance to the flower of the plant from which the seed was taken, it may strike back to one of its numerous ancestors, or it may represent a new blend of the qualities of the mother plant with those of some other variety that stood near it in the field. The new varieties originate from the planting of seeds. When, however, you plant a root or set out a green plant that has come from a slip, you are, in a way, continuing an individual plant from one season into the next. If this is kept up indefinitely, it is a sort of immortality for a single individual. Except for slight variations due to changes of soil or of climate or perhaps to disease, the flowers under such conditions remain true to type, and may be propagated as varieties with certainty.

If one is planting only a few and wants to do it right, it is well to dig a hole a foot or two deep and see to it that the future plant has good, fertile soil underneath it. Lay the root or division on its side, with the eye or sprout upwards, about six inches below the general surface, and cover at first with about two inches of soil, later drawing in more soil about the plant as it grows, leaving the surface finally level or a bit concave for efficiency in future watering. Don't let more than one or two shoots grow, though it is sometimes prudent to leave more than that until danger from cutworms and stem-borers is passed. A good general working rule is to plant three feet apart, each way, though vigorous, well-nourished plants do better and are more approachable if the rows are four feet apart.

Hot, dry weather is perhaps the chief enemy of the Dahlia and for that reason they commonly do better near the seacoast than in the interior of our country. Dahlias ordinarily require little artificial watering until they have reached flowering size and then they commonly need plenty of it. It is much better to soak the ground twice a week to a depth of a foot or two than to water a little every day. It is an excellent rule to be free with the hoe in the early part of the season and to be free with the water after the plants begin to blossom.

Most people who raise only a few Dahlias tie them up to stakes to lessen possible injuries from wind and rain. If this is to be done, it is well to drive the stake just before planting. Some varieties are naturally short and others are just as naturally tall. For the taller kinds a standard size of stake is six feet long and one and one-quarter inches square. If the stakes are kept painted and if the bottoms are dipped in creosote oil, they will last for many years.

Some Dahlia growers prefer to keep their plants low and shrubby by snipping off the top of the young stem above the second pair of leaves. Instead of one main trunk we then usually have four lateral branches that take its place. This beheading operation retards the opening of the first flowers by about two weeks. The crown bud—the bud that terminates the main stem or a main branch—commonly makes the best flower and its size and beauty are enhanced if the lateral buds coming from the bases of the three, four, or five pairs of leaves below it are removed about as soon as they start. This allows the whole strength of the main stem or main branch to go to the perfection of the one flower. Whether you should practice disbudding or not is largely a matter of taste. It all depends upon whether you want many and smaller flowers or fewer, larger, and, as most people think, handsomer flowers.

DECORATIVE DAHLIA, HORTULANUS FIET

(Photographed at The New York Botanical Garden. Cut used by courtesy of the New Jersey Agricultural Experiment Stations)

In the early part of the season most of us dislike to disbud, feeling that in so doing we are sacrificing many future flowers, but as the season advances and the day of the first frost approaches, we do it with a clearer conscience, feeling that the buds we are removing would be likely to be caught by the frost before they would have a chance to open. Withered flowers should be removed, both to improve the appearance of the plant and to conserve the vigor of the plant

DECORATIVE DAHLIA, KING OF THE AUTUMN
(Photographed at Pleasantville, New York)

by removing the necessity of ripening seeds, that is, unless you wish to ripen seeds and save them for next year's planting. But, as I have already said, you do not know what you are going to get when you plant a Dahlia seed except that it is going to be a Dahlia, and unless you have plenty of ground, a taste for experimentation, or an overwhelming desire to originate a new variety of commanding merit, it is better to stick to the tuberous roots or to green plants grown from slips. If, however, you are interested in the fascinating game of producing new varieties of Dahlias, don't think you have a world-beater and don't put it on the market until you have sent roots of it to the Trial Grounds of the American Dahlia Society at Storrs, Conn., or College Park, Maryland, until representatives of the American Dahlia Society have tested it out, have compared its flowers with those of related varieties, have rated it, and have perhaps given the new variety a "certificate of merit." Although the new varieties of the last five or ten years have added much to the increasing popularity of Dahlias, the fact remains that too many new ones, often no better than cheaper pre-existing varieties, are now being offered for sale.

Dahlias, we have said, are easily grown, but it must be admitted that they have their diseases, like other organisms. Most important among these is a mysterious trouble known as the stunt or dwarf disease, which may not be really different from what is sometimes known as the "mosaic" disease. The plant does not develop normally, it remains short or becomes abnormally bushy, and the flowers are few, poorly formed, and undersized. Investigation of the roots often shows small brownish cracks in the skin of the crown, the necks of the roots, or the roots themselves. The cause of this trouble is not certainly known, but, whatever the cause, it is handed down from one season to the next in the tuberous roots and also a little less often in plants that are grown from slips taken from diseased plants. Roots from plants suspected of disease should never be planted unless one wants to perform a scientific experiment, and in that case do not plant them near your healthy stock, for the trouble seems to be contagious. From certain experiments that have been made and from what is known of similar diseases in other plants, it seems probable that the disease is carried from sick plants to healthy ones by small sucking insects such as plant lice and leafhoppers. The common leafhopper, which is sometimes called the white fly, though different from the true white fly of the greenhouses, is especially the object of suspicion. The adults are about one-eighth of an inch long and are yellowish white or greenish white. When newly hatched, they are much smaller, have no wings, and are usually found close to the veins on the under sides of the leaves. As they feed by pushing their little bills through the skin of the leaf into the juicy interior, they cannot be killed by stomach poisons spread on the surface of the leaf. The only way to get them is by contact poisons, such as the various nicotine sulphate preparations, and these are of no use unless they actually hit the insect. If the leaves are sprayed with Black Leaf 40, X-L All, or some other nicotine sulphate preparation once a week, beginning about June 25 and continuing until September 1, and giving special attention to the lower surfaces of the leaves, the little pests and probably also the spread of the disease may be held in check. But when you feel confident that a plant is diseased pull it out and burn it. Don't coddle it along, with the usually vain hope that its progeny of another season may be stronger. The solution of the mosaic disease problem seems to be to get healthy stock and to keep it healthy by suppressing the small sucking insects.

A usually less serious enemy of the Dahlia is the stem-borer, a worm about an inch long that enters the stalk from the outside and eats the interior of the stem. Its presence is usually betrayed by the wilting of the upper part of the stem. The most direct and practical relief is to fish out the worm with a slender wire, hooked at the end. One can usually do this without serious injury to the plant by reaming out the hole by which the worm entered or by cutting off the top of the stem, thus making a suitable opening through which one may introduce the slender flexible wire. If one has only a few plants and is willing to take the necessary trouble, one may usually protect them from both cutworms and stem-borers by surrounding the base of the young plant with a cuff of tarred paper, more or less anointed with some sort of "tangle-foot."

In the late Autumn, very soon after the plants are killed by frost, the roots should be carefully lifted and stored away for the Winter. If they are left long in the ground there is not only the danger of a real freeze that might damage the roots, but there is also a danger of a warm spell of weather that might start new shoots and thus draw out nourishment that you would rather have remain in the roots for use the next Spring. The beginner should remember that a root with a broken neck is commonly

POMPON DAHLIA, BELLE OF SPRINGFIELD
(Photographed at The New York Botanical Garden. Cut used by courtesy of the New Jersey Agricultural Experiment Stations)

useless and that, accordingly, much care should be used in lifting the clump. Sometimes two men working together, putting in their spades or spading forks on opposite sides of the clump and lift-

ing together, can operate with less damage to the roots than one man working alone. Cuts and bruises are to be avoided, as they give rot-producing fungi a better chance for attack. Any cuts should be covered with powdered sulphur. It is desirable to let the lifted roots dry off in the sunshine for two or three hours to remove any excess of sap or moisture from the pith or hollow of the stump, as this fluid, if left, might prove a culture medium for the spores of moulds or other fungi. Many Dahlia experts, in packing away their clumps of Dahlia roots, turn the stump downward, so that any excess moisture may drain out. As a place for storing roots, any cellar must be tried out before it is quite safe to say just how it will work. If one has a special vegetable cellar where the temperature can be regulated and can be kept a few degrees above freezing most of the time without ever dropping to the freezing point and where potatoes and apples keep well, Dahlia roots also, as a rule, may be kept without any special attention as to covering. But the air in an ordinary furnace-heated cellar or basement is too hot and too dry for the proper preservation of Dahlia roots unless they are covered in some way. The ideal covering is sifted sand. This rattles down into all the cavities among the roots and at the same time there are minute air-spaces among the grains of sand, so that the roots are not altogether smothered. If sand is not easily obtainable, ordinary soil, preferably sandy soil, may be used, or sifted coal ashes commonly do very well. From ashes the roots sometimes come out in the Spring more or less shrivelled, while from sand they usually come out as firm and plump as when they were packed away. One may often get good results by wrapping the clumps in newspapers and then storing them away in boxes and barrels. One should strike the happy medium between too much covering and too little and just what that happy medium is, may best be determined by experience with one's own cellar. The boxes or barrels containing the roots should be placed as far away from the furnace as is consistent with safety from freezing. Moulding and rotting of the crown is often prevented by filling the hollow of the stump with sulphur or at least sprinkling all the cut surfaces of the stump with sulphur. Many people shorten the stump after digging by cutting it off again close to the crown.

Dahlia roots of the numerous varieties are selling at the present time at prices ranging all the way from fifteen cents to fifty dollars a root. But one can make an excellent selection at prices ranging from fifteen cents to a dollar. The older, more widely distributed varieties are naturally the cheaper. The fact that a variety is an old one is in itself an indication that it has some virtues, as in the case of an old book that is still sold. It is an indication also that the variety is resistant to disease and that the roots winter well.

Among the older, cheaper, Peony-flowered varieties may be mentioned *Geisha*, scarlet and gold; *Madonna*, white: and *Cream King*, cream-colored. Of the newer Peony-flowered Dahlias, we may mention *Shantung*, red and gold; *Pearl Ruggles*, carmine-rose; and *Uncle Sam*, orange-buff, one of the largest-flowered varieties grown.

Old, cheap, and excellent varieties of the Cactus and Hybrid Cactus classes are *Countess of Lonsdale*, which is salmon-pink and a very free bloomer; *Standard Bearer*, scarlet; *Sherlock*, orange; *Pierrot*, amber with whitish tips; *F. W. Fellowes*, orange; *Nibelungenhort*, old rose; *Marguerite Bouchon*, pink and white; *Kalif*, scarlet; *George Walters*, salmon-pink; *Mrs. Warnaar*, white or apple-blossom pink; *Attraction*, lavender-rose; *Tom Lundy*, carmine-red; and *Helen Durnbaugh*, blush-pink.

Of the Decorative type some of the excellent, older, well-established, cheaper varieties are *Minnie Burgle*, dark scarlet; *King of the Autumn*, buff-yellow or terra-cotta; *Souvenir de Gustave Doazon*, red; *Hortulanus Fiet*, shrimp-pink; and *Jeanne Charmet*, lilac-pink and white.

Of the newer and somewhat higher-priced Decoratives, without, however, mentioning any of the fine novelties of the last season, we might name *Snowdrift*, pure white, which won a prize last year as the "best flower in the show" in the annual exhibition of the Bergen Co. (N. J.) Dahlia Society; *Judge Marean*, salmon-pink, orange, and gold, a profuse and early bloomer; *Earle Williams*, crimson and white; *Mrs. Carl Salbach*, lavender-pink; *The Grizzly*, dark velvety maroon; *The Millionaire*, a faint lavender-pink, a variety that often wins prizes for size of flower; *Insulinde*, orange, gold, and brown, sometimes a prize-winner for "the most artistic Dahlia"; *The U. S. A.*, deep orange; *Mrs. I. de Ver Warner*, a deep mauve-pink; *Rosa Nell*, lavender-pink; *Cambria*, pink and white; *Le Toréador*, flaming red; *Beatrice Slocombe*, orange and gold; *Bonnie Brae*, rose and cream; *Amun Ra*, burnt orange and copper-colored; and *Emily D. Renwick*, iridescent rose.

Of the newer and somewhat higher-priced varieties of the Cactus and Hybrid Cactus classes, without mentioning the promising novelties of the last season, we might name *Gladys Sherwood*, large and pure white, which the judges pronounced "the most beautiful Dahlia" in last year's show of the Short Hills Garden Club, in New Jersey; *Lady Helen*, pink and cream, often a prize-winner in its class; *Dorothy Durnbaugh*, lavender-pink; *Mrs. Ethel F. T. Smith*, a light cream-yellow; and *Edith Slocombe*, a beautiful garnet-purple.

Trees and Climate

IN EVERY country a subterranean reservoir exists at a greater or less depth below the surface. It is the level of saturation which, of course, varies from time to time according to the rainfall. At the sea, it coincides with the mean tide level, but it rises more and more on going inland, and it is the level to which wells must be sunk before water appears, in them. It is caused by the rain, which is usually said to run off to the extent of one-third; another third sinks in to form this reservoir, and the remainder is lost in evaporation. When following a river valley, one often notices a line of Springs appearing at a certain level; this is when the valley has been cut down to below the subterranean reservoir, which then forms a wet trough for it to run in. When the reverse is the case, the river loses a great deal of its water by its percolating into the dry soil around and beneath it. In the East this last is very common, so that rivers very often get smaller and smaller the farther they go, till at last they dry up altogether.

We see now that the denudation of trees has cumulative ill effects which tend to reduce the fertility of the country. The reverse is also the case; a large growth of forests has accumulative good effects tending greatly to increase the humidity of the air, the equability of the temperature, and the fertility of the region. The moisture in the atmosphere, largely supplied by leaves, has a very great, but often unnoticed, effect on a climate. The aqueous vapor is impervious to heat rays, unless they come from a greatly heated source. In fact, it acts in much the same way as glass. The heat rays from the sun pass freely through, but when the same rays are reflected back from the earth, the glass or the water vapor acts as a screen to them. The atmosphere in this case is just a blanket like the roof of a greenhouse, with all the benefits which naturally accrue from it. This is the main reason why moist climates are so much more equable than dry ones. In a desert the day temperature often rises to 120 degrees or even 140 degrees Fahrenheit in the shade, while at night it may fall below the freezing point. In a moist climate in the same latitude the daily range will be perhaps from 80 to 85 degrees shade temperature in the day, and 65 to 70 degrees at night. The hotter the climate the more marked are these effects. In the moist climate of Bengal, in the forested parts, the thermometer scarcely ever reaches 90 degrees in the shade, whilst at night it is rarely below 80 degrees. In the same latitude in Bikaneer Desert or in the Sahara, the temperatures have a diurnal range of perhaps 70 degrees or 80 degrees instead of 10 degrees, and this is entirely due to the absence of moisture in the air. It follows, then, that the hotter the climate the more careful man should be to preserve his trees, but unfortunately exactly the reverse is usually the case, either from ignorance, want of fuel, or shortness of pasture.—Abstract from article by Col. H. de H. Haig in *Discovery* (British) for May, 1923

Frost-proof Gardens

Our need is not brighter blossoms, but brawnier ones, for our gardens. A glance at our blasted borders the morning after the first frost is convincing on that point. Marigolds, Nasturtiums, Cosmos, all are beautiful, and should be at home in every garden, but the morning after the first frost they are spectacles of woe, as melancholy as a lost hope. We need flowers that will laugh at that first frost—something that will not shiver and die at the mere whisper of Winter.

There are such flowers—not a long list, but a brave one. Chrysanthemums, of course, must take front rank in such a list. Let us grow more and more of them. They respond wonderfully to care, but the important thing is, they stand neglect. For country gardens the tiny button ones are most satisfactory, although the fluffy ones are almost as easily grown. November days are not half so gray if we fill our vases with a little home-grown sunshine.

Gaillardia is another boon for northern flower lovers—its red and gold withstands even freezing weather. This is one of the easiest of flowers to grow, and is always in bloom. Sweet Alyssum and Mignonette persist after hard frosts, and Verbena, in ordinary years, may be cut in November. Mourning Bride stands rather severe frosts without scalding, and Calendula is a joy for late cutting. A little protection carries this flower up to the snow line of Winter. This is but a handful, and we need many to brighten dull days—who knows more?—FLOWER LOVER, (In *Rural New-Yorker*)

Some of the Wonders of Pollen

BY DR. E. F. PHILLIPS, Washington, D.C., (In *Gleanings in Bee Culture*)

The Life-giving Element for both Bees and Plants. A Peep behind the Scenes in Nature's Drama

Have you ever looked at a snowflake or a grain of pollen under the microscope? Have you seen the remarkably beautiful process of reproduction in plants? Do you know what clever methods Nature employs to prevent fertilization by pollen from the same plant and to insure that pollen be carried to the flower from another? Do you realize the importance of an abundant supply of pollen for the bees? This paper, read in part at the Wisconsin Beekeeper's Chautauqua last August, throws light upon these interesting topics.—(Editor, *Gleanings in Bee Culture*)

(Photographs by Courtesy of A. I. Root Co., Publishers, Medina, Ohio)

IT is a matter of common knowledge to beekeepers that the amount of pollen collected by bees and used by the colonies as food for their young is enormous. If a colony is queenless for some time and consequently has no brood to feed, it may, as is sometimes stated, to some degree decrease its activity in pollen-collection, yet the combs of the brood-nest are soon filled with stored pollen, for which the bees then have little if any use. This is at least an indication of the amount of pollen which must be collected and used by a normal colony during the period of brood-rearing, but which they often use almost as rapidly as it is gathered, so that it makes less showing in the hive. No attempt has been made to determine accurately the amount of

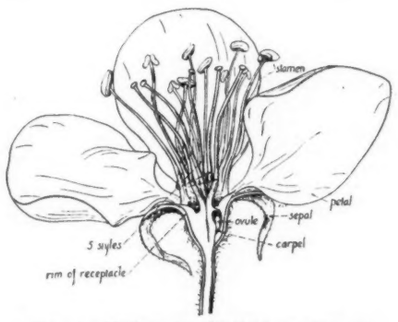


Fig. 1.—Median longitudinal section of flower of Apple with parts of flower labeled. The double anthers are at top of stems labeled stamens. (After Robbins)

pollen used by an average colony during the course of the year, yet the amount must be a number of pounds. Since each cell of stored pollen contains millions of pollen grains, the vastness of this supply is apparent.

Pollen furnishes an important constituent of the food of the brood of bees, and without such food brood-rearing is impossible. The chemical work done years ago by von Planta brought to the attention of beekeepers the character of this food. Recognizing the necessity for a protein food for rapidly growing animals, such as the bee larvae are, beekeepers have made numerous attempts to provide a substitute for pollen in times of shortage, and have in most cases attempted to provide them with a powdery material containing a considerable amount of protein of some kind, in the hope that it would serve for the needs of the larvae. Because the bees must have a protein material which may be digested and utilized by them, studies of the chemical analysis of pollens are especially interesting to the beekeepers, especially those which deal with the nature of the proteins in pollens. One never knows what practical application newly discovered facts may have, and for this reason an attempt is here made to review briefly the work which has been done in this and allied fields of plant physiology and bio-chemistry.

A pollen grain is the male cell of the plant which in the fertilization of the ovule combines with it to form the fertilized ovum, which later develops into

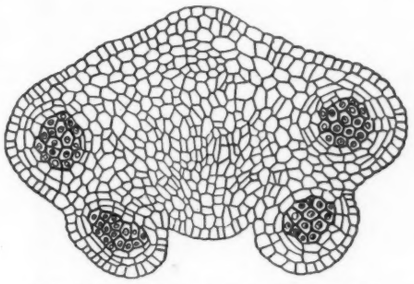


Fig. 2.—Section of young anther of Lily showing the four sporangia from which pollen grains are developed. (After Coulter)

the essential part of the seed. Fertilization of the ovule is necessary to the development of seed and fruit in most species of the gymnosperms and angiosperms, and pollen is produced in great abundance in these two great branches of the plant kingdom. It is not homologous with the spores of Ferns and other lower divisions of the plant kingdom, although bees are sometimes reported as collecting these materials as they do pollen. Pollen is produced in definite organs in the flower, known as anthers (Fig. 1), these with their supporting filaments being evolved, as are other floral organs, from modified leaves. On the maturing of the pollen grains (Figs. 2 and 3), making them suitable for their normal function, the anthers open so as to release the pollen grains. This phenomenon is known as dehiscence, and the opening occurs through specially constructed clefts, or openings of some sort, in the anthers.

ONE is tempted to say that pollen is often somewhat neglected in the study of botany, yet a considerable number of botanists have described and illustrated with great care the form and structure of pollen grains. Several important articles have appeared describing the external structures of these interesting particles. They are found to vary greatly in form, and often to present bizarre and curious modifications. The sculpturing of these grains is most elaborate, and one is at a loss to explain

Fig. 3.—Section of older anther of Lily showing sporangial cavities fused to form two pollen sacs which are filled with pollen grains. Dehiscence occurs at point marked S. (After Coulter)

what use these intricate patterns are to the economy of the plant. The grains differ from each other in form, color,

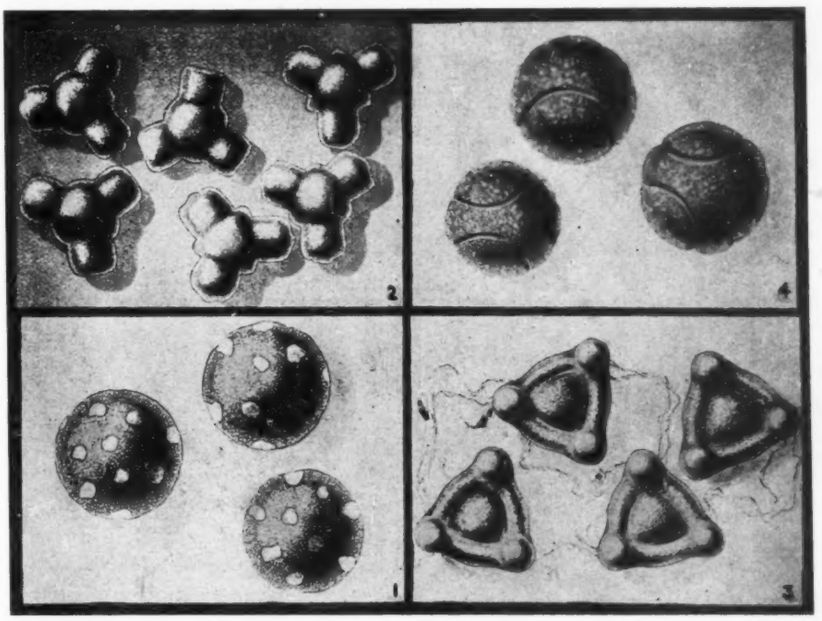


Fig. 4.—Types of pollen grains: (1) Phlox; (2) Clarkia; (3) Willowherb (showing threads of viscin which hold grains together); (4) Passion flower. (After Bastian)

surface markings, texture of walls and translucency. In order to show this great variability, there is perhaps no better plan than to show illustrations of a few patterns (Figs. 4, 5 and 6) which have been described. The accompanying illustrations, taken from an interesting paper by Bastian, are valuable for this purpose.

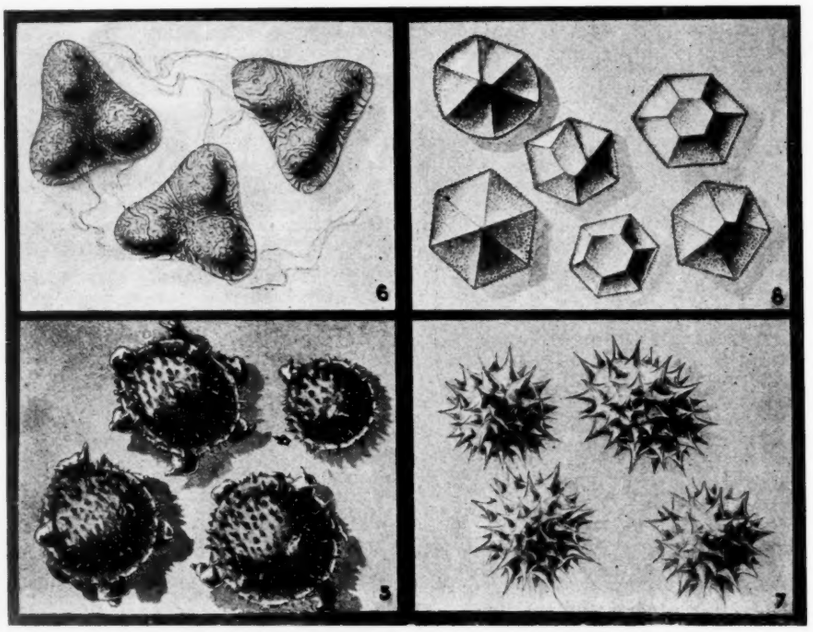


Fig. 5.—Types of pollen grains: (5) Vegetable marrow; (6) Rhododendron; (7) Marguerite; (8) Dandelion. (After Bastian)

The study of the form and structure of pollen grains has found an application in beekeeping. Efforts have been made to study the pollen grains contained in honeys, to determine to what extent the plant source of honeys may be established by this method. It has usually been assumed by those who have worked in this field that the method is a quite satisfactory one, yet there is reason to doubt its accuracy in many cases. In the first place, bees are able to obtain nectar from some flowers without coming in contact with the anthers, and from such flowers the honey may or may not contain pollen grains. Certain cases are known of honeys from certain flowers which do not contain the pollen grains of that species. In extracted honey, there is also considerable chance that pollen grains from species of plants blooming at entirely different periods of the year may get into the honey during extracting, and even that pollen from species which do not secrete nectar at all may be included. Whether there is any such mixing in comb honey has not been determined. On the whole, one must conclude that it is dangerous to make definite statements as to the source of a honey solely from an examination of the pollen grains contained in it. There is need for considerable more work on this subject before we can determine whether the examination of honey for the pollen in it is of any value whatsoever in determining its source.

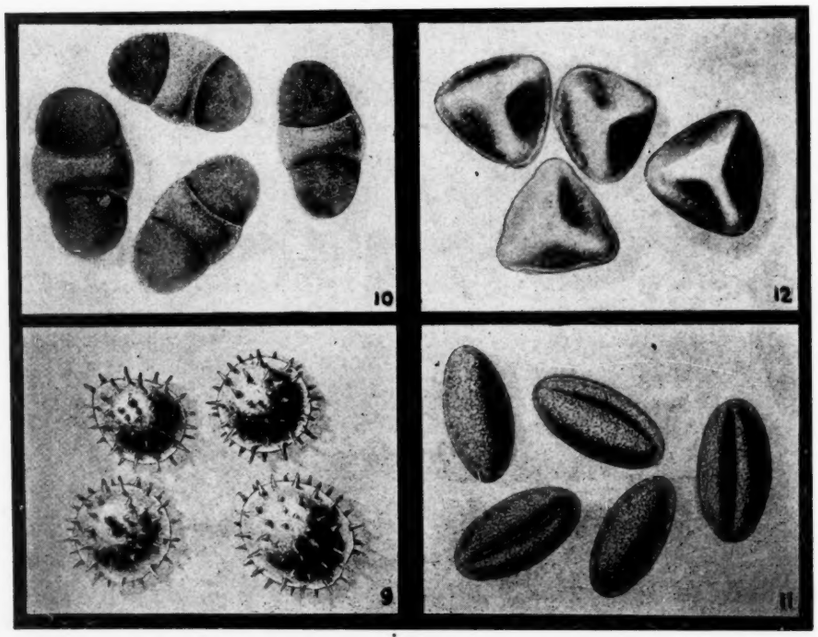


Fig. 6.—Types of pollen grains: (9) Mallow; (10) Scotch pine; (11) Lily; (12) Nasturtium. (After Bastian)

An interesting point regarding pollen structure is that in certain plants in which there are flowers of more than one form, which vary in the lengths of their stamens and pistils, such as the dimorphic or trimorphic plants, there may be pollen grains of more than one type. This diversity of pollen form has a bearing on the fertilization of the ovules of these species, since in some cases apparently the flowers are fertilized efficiently only with pollen of the form unlike that of the flower in question. Here we have an interesting forerunner of self-sterility of which more will be said later. There are also certain flowers which have two kinds of pollen, one of which will form pollen tubes and are functional while other pollen grains are sterile. Early students of this subject believed the impotent pollen grains were produced as food for pollen collecting insects.

Fig. 7.—Germinating pollen grain, showing extrusion of pollen tube with nucleus of tube and also two male nuclei, one of which causes fertilization of ovule. (After Bergen and Caldwell)

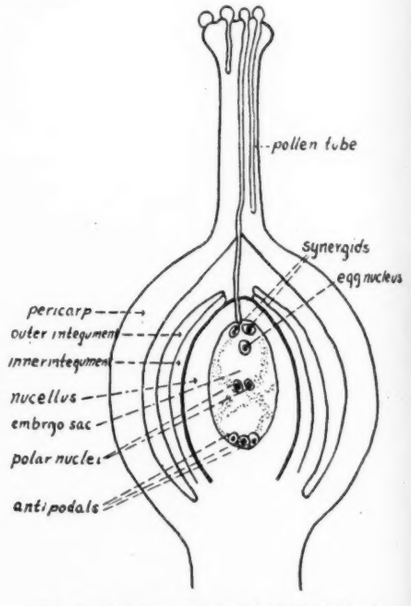


Fig. 8.—Diagram of simple pistil in longitudinal section showing growth of pollen tubes and a single ovule just prior to fertilization. (After Robbins)

THE LAVISH PRODUCTION OF POLLEN

THE amount of pollen produced by flowers is often exceedingly large. It has been estimated that the common Dandelion produces about 365,000 grains to the flower head and that a Peony may produce 3,500,000 grains. In species which depend on the wind for the move-

ment of pollen, such as the Pines and Firs, excessive amounts of pollen are produced. At the Bee Culture Laboratory, about which there are a considerable number of Pine trees, the sidewalks are annually covered in Spring with Pine pollen, and the table back in the grove where we eat lunch is made yellow with this substance. Fir pollen is reported as being conspicuous on the snow of the Alps. Glass slides smeared with some adhesive material and exposed only after they have reached an altitude of one thousand feet above the earth's surface have been found to collect flying pollen grains abundantly. The experience of hay-fever patients is quite conclusive evidence as to the great amount of pollen produced by some species and the distance which it may travel. It has been estimated that one gram of ragweed pollen, so much feared by many hay-fever sufferers, contain 172,800,000 grains and that one square meter of grass may produce 2,500,000 grains.

HOW POLLEN IS CARRIED FROM FLOWER TO FLOWER

The structure of pollen varies according to the method for its carriage. As is well known, pollen is carried from one flower to another and as a result cross-pollination is common in nature. This is known from many experiments and experiences to be essential to the setting of seed in many species. The two commonest agencies for pollen transference are wind and insects. The elaborately carved and irregularly shaped pollens are found in plant species which depend on the work of insects in this field, and many such species also have the pollen grains covered with a sticky material, in order that they may more easily adhere to visiting insects. In some species, such as certain Orchids and Milkweeds, the pollen grains are united to form large masses, called pollinia, which adhere as a mass to the various insect structures and are thus more certainly carried in an efficient manner to the next flower. In the plants of the Heath family (Ericaceæ), which includes so many valuable honey plants, the mature pollen grains always remain united in tetrads, or groups of four, as in developmental stages of all pollen. (See Fig. 5, No. 6)

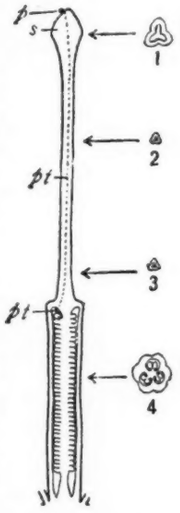


Fig. 9.—Outline of pistil of a Lily, a type of flower in which there are numerous ovules to be fertilized. Each must be met by a separate extruding pollen tube to cause fertilization. (After Coulter)

In the wind-pollinated plants pollens are usually small and smooth, and in many cases there is contained within the pollen shell one or more air sacs, which serve to lighten the grains, enabling them more easily to be carried by the wind (Fig. 6, No. 10). Such grains are dry and dusty, and unless they contain air sacs are usually spherical in shape. It is usually in the flowers of wind-pollinated plants that the largest numbers of pollen grains are found, such as the Pines which have already been mentioned. The size of pollen grains varies considerably, two interesting examples of this variation being shown by Onosmodium having pollen grains averaging thirteen micromillimeters in diameter and in the evening Primrose with pollen grains about ten times as large in diameter.

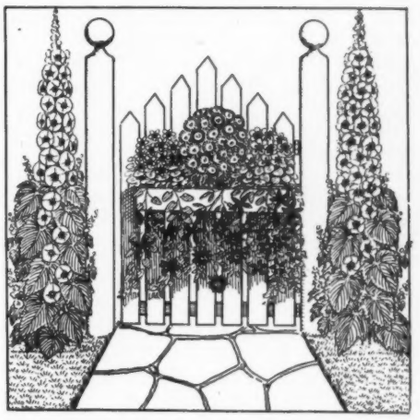
THE COVERING OF POLLEN GRAINS

SOME interesting work has been done on the chemical composition of the outer membranes of pollen grains, and this work has an interesting significance in beekeeping. It was originally assumed that this covering consists exclusively of cellulose, but later work has shown that there are several distinct substances found in these coats, varying with the plant species. Cutin, cellulose, pectinlike materials and modified callose have been described in these coats. There is always a double-layered membrane on the grains, the extine and the intine, and these may be unlike in composition. Each of these layers may consist of minor subdivisions or layers, also varying in composition. The sculpturing is usually on the extine, although the intine may show markings especially around the pores. In these layers there may be openings or pores through which the pollen tube grows during pollination of the flower, and the coverings of these pores may be unlike other parts of the outer covering in composition.

The composition of these coats is interesting in a study of the digestion of bees, since bees are unable to digest cellulose. To what degree they can digest other constituents of the pollen coats is undetermined, but there is some reason to believe that they are able to digest some of the constituents of more simple composition. Since the cellulose constituent at least is always left unmodified after it passes through the digestive tract, we find empty pollen grains with the coats slit but otherwise complete in great numbers in the rectal ampulla of the bees and also there are found many pollen grains with their contents intact. This has led to the belief that unless pollen grains are broken by mastication when ingested the contents are unavailable to the bees as food. Although at present it is unwise to state this as true for all pollen grains, it is certainly true for some of them. There is the possibility that in the presence of sugars in the alimentary canal the pollen grains begin germination, thus releasing the grain contents into the pollen tube. This is an interesting speculation; but so far there is no observation to support it, even though one would suspect in advance that this would occur.

THE PROCESS OF FERTILIZATION

THE germination of the pollen grain has been mentioned, and it may well briefly to describe this process in the fertilization of the flower. The accompanying illustrations (Figs. 7, 8 and 9) show how the pollen grain sends out a tube which finds its way through the pistil of the flower until it reaches the protected ovule to be fertilized. Here the male nucleus of the pollen grain unites with the nucleus of the ovule or female cell, the union giving rise to a fertilized ovum, from which the next generation of the species develops. The phenomenon of fertilization in plants is essentially like that in animals. The growth of the pollen tube through the pistil of the flower is facilitated by the secretion of materials by the pollen tube which digest a path through the cells of the tissues of the pistil in some cases, while in others a way is forced for the tube between the cells of the pistil. In this growth it is observed that certain nuclei pertain only to the growth of the pollen tube, while the tube carries within it the male nucleus essential to fertilization, which carries the hereditary characters determining the characteristics of the next generation. In the usual fertilization of an ovule, only the ovule itself receives a nucleus from the pollen, and as a result the surrounding tissues show no evident result of crossing when hybridizing occurs, but in other cases (Xenia) male nuclei from the pollen also unite with the endosperm or coat surrounding the ovule so that it too shows the result of crossing. Corn is a well-known example of this.



BEAUTIFYING THE OLD GATE

In touring the country recently, I was so impressed with a glimpse of a gate which had been modernized, that I just must tell you about it. The gate, of the old English type, was painted white; and on either side about half way up, was braced an immaculate white flower box filled and running over with a gay assortment of English garden flowers. The vines streamed down the side in wild profusion; enough to make one stand and stare. Hollyhocks stood sentinels just behind the huge posts at each side, and I could catch a fleeting glimpse of the house and its wonderful pool and lawn before it, and its gardens and tennis courts away at the back.

LUELLA B. LYONS

The Editor's remarks about "Classification of Exhibitors at Flower Shows" in the Editorial Department and Professor Crow's suggestions on "Show Varieties vs. Garden Varieties" in the Gladiolus Department this month, offer some constructive criticism of what has been done with Gladiolus prize lists at the shows during past years. There is room for great improvement and it is hoped that this season will see some radical changes in the arrangement of prize lists. There is no reason at all why the compilers of prize lists should go on making the same mistakes that their predecessors have made year after year. As a matter of fact, some of the schedules have been quite inferior to those preceding them.

Our Birds

Madame Humming Bird Builds Her Nest

BY DELPHIA PHILLIPS, (California)

SUCH a wee, little nest as it is, and yet so marvelously perfect! She places it in the oddest situation, sometimes; in one instance setting it atop of two immature Peaches. The Peaches themselves were rather small, and I do not know if they increased in size while the little nest was perched just above them. While the hummer builds in honeysuckle vines and other places about houses, when in the open she seems to prefer a dead limb with warts and knots on it, and bits of lichen and moss. At least, that is the way the ones I have personally observed seem to do. The reason is probably because the nest, which is itself constructed largely of these materials, looks so much like its surroundings. The nest I have this day, (Feb. 11), discovered in the process of being built, looks so much like the knots and bumps on the old gnarled limb of a half-dead tree that I might not have discovered it at all if the little Madame had not buzzed about it so much. I was sure she wasn't getting honey out of that dead limb, and by dint of much peering overhead, I found that one of the excrescences on the limb was the beginning of the thimble-like cup that was later to hold her two queer, ugly, bug-like babies.

The nest was only about one-fourth complete, apparently, but there was enough of it for her to sit on, and the vigorous way she kicked and scratched about as she sat there was highly amusing in so small a creature. And every few moments, she ran her long bill all about the outside of the nest getting it shaped to her liking. She never lingered more than a minute or two. Then she was off to get a sip of nectar from some early flower, or to get a tiny particle of something to weave into her little cradle. She often flew to the other side of the canyon for the almost infinitesimal bit she brought back to build up her house. It looked like such hard work, and such a lengthy task, that I longed to gather a handful of the material she seemed to be using and put it in her reach. But she was a fastidious creature, and no doubt would have scorned my blundering offers. She wanted what she wanted when she wanted it, and how could I know when she was lining the interior with the soft plant down and gossamer spiderwebs with which the silken cradle is upholstered, or camouflaging the exterior of it with lichen and moss?

HER actions when she discovered me were most amusing. She flew all about me, giving me the once over. Then she poised on her wonderful, rapidly vibrating wings, and gazed at me for moments at a time, coming very close, and seeming to be not in the least afraid. Once or twice she almost flew into my face. At last, apparently satisfied that I was not an enemy, she thereafter paid no further attention to me and went on with her nest building in a most unconcerned manner, pausing now and then to gaze down at me, as I stood directly beneath her, with her tiny black eyes. I was not surprised that she was doing her building all alone as I knew the male is something of a shirk in this line. Somehow, though, I have always been of the opinion that the dear, fussy little madame would not allow anybody but herself to help with that work of art,—a Humming Bird's nest.

Humming Bird on Nest

Though this little lady may have begun her nest-building earlier than some other members of her family, the hummers probably build earlier in California than they do in the east, or in colder climates. This species, the Anna's Humming Bird, does not migrate, but remains here in Southern California all Winter, and so with the Spring which begins to make itself felt in February, she started work on her cradle.

It is an interesting fact, that though there are at least three hundred species of Humming Birds, there is only one east of the Rocky Mountains, in the United States; and our continent, so naturalists state, is the only one that has any Humming Birds at all. Six of the species nest in California, and two others appear as migrants.

AS THE days wore on, the wee nest was built up to the height of about two inches, and by February 19, the little madame was setting, as was plainly evident, though I could not get a peep into the nest.

It was interesting to note her alarm when I first set up the camera in a limb facing her nest. I had climbed out on the overhanging limb, from which extended the dead twig on which her nest was placed, at the risk of my neck, and she had seemingly not minded me at all, but when she first saw the black object in front of me, she showed for the first time signs of real distress, sitting on a near-by limb and uttering her little "tick, tick," with a new note in it that plainly showed fear. I have found that nearly all wild birds show some signs of a sort of instinctive fear at the sight of a camera with its shiny nickled parts. I believe that it is the fear of a gun which has become ingrained in them. She absolutely refused to return to her nest that day, so I gave up the effort to snap her on that occasion.

But when I returned two days later, she was setting, and though I approached her fearfully, she did not offer to fly and showed no fear at all, even when the dreadful black object was again rested on the limb in front of her. In climbing out on the limb, I was obliged to shake her tiny nest as if it were in a gale, but she did not seem to mind it in the least. I found it a most difficult task to stand up on the limb and photograph the tiny creature.

Now I began to wonder what I should call the twins when they hatched, for as a rule there are but two bean-like eggs in the mossy cups. She was not as restless as many Humming Birds are, and remained longer on the nest, but whenever she returned, she always ran her bill around the outside of it, as if fearing that it had got disarranged while she had been absent. As she allowed me to get very close to her now, I was interested in watching her peaceful expression as she sat there with half-closed eyes.

SHE had every reason to be happy. She had finished her small house, and it was well hidden. On each side of her were the green canyon walls, and beyond a lovely expanse of blue, California sky. Warm sunshine sifted down through the branches on her little back. Just a few feet away were great clumps of the bladder-pod, a kind of plant belonging to the pea family, and which bears myriads of yellow blossoms, containing the nectar that is such good Humming Bird food. Above the blossoms flitted the insect life that supplies meat with which the birds cannot dispense. She was not at all afraid of the tall creature in khaki who visited her nearly every day. The

sinister looking black box had not harmed her.

It is hard to tell the sequel of the story. One day, when, after a busy week, I found time to hurry back to the canyon, my first glimpse of the little cup told me something was wrong. It was as perfect as ever, but it had that indescribably deserted look that houses wear when its occupants have gone away. I waited a long time, but the little householder did not return. I had been absent but three days, and I knew the little eggs could not have hatched in that time. Finally, I spied a tiny bit of shell on a rock beneath the tree, and something that looked like a bit of the contents splashed on the same rock.

Who or what could have robbed that tiny nest for the wee morsel of eggs it contained? It seemed to me that if I had queried all the other birds of the canyon, and all the wild folk in general, they would have all denied such a cruel trick. I could almost hear a voice saying in the words of the old rhyme: "I haven't a chick that would do such a trick."

Only one thing consoled me. The little creature had surely enjoyed building her nest, and she had spent happy days, sitting on the eggs before the tragedy came. No thought of danger had come to her gentle breast. She had had nearly three weeks of glad, care-free bird life, happy in the joy of creating that marvelous nest and brooding on the eggs. And I hope the end came mercifully and swift. The wee nest hangs there still in the brooding silence of the canyon, but the little architect comes no more.

Feathered Altruism

He had not come to hurt and kill
On this wide cliff—or find the thrill
That comes with dizzying height and climb
Up shelving rock to scenes sublime.
It was to study life of birds,
That nested there in countless herds,—
That brood and hatch on spur and ledge,
On every jutting shelf and edge,
A wheeling, happy, web-foot clan,
Not often terrified by man.
The man climbed on—slipped, flattened, clung—
While birds, in terror for their young,
Soared high with screams and driving wings.
Their eggs,—their nestlings—frightened things—
Rolled down the cliffs, where far below,
Were greedy seagulls—hated foe!

Not all the mother-birds had fled,—
One dauntless murre, with wings outspread,
And blazing eyes, and boundless fear,
Stood guard o'er her one fledgling dear,
Unmindful of the other birds
That circled, screaming warning words.
One shivering baby left alone,
The mother whisked back with her own.
She rescued an abandoned egg
With lightning fling of wing or leg,
Then faced again the man so nigh,
With threatening beak and fiery eye.
He paused in reassuring way,
Until the mother—still at bay—
Leaned toward him, as if she had smiled:
"*Perhaps*—you would not harm my child."

The man, with lifted finger-tip,
As if to offer fellowship,
Her feathers gently stroked—fear fled—
She let him touch her darling's head,
And sidled near with clucking low,
That meant: "You understand—you know—
You love my baby, and defend—
Henceforth I count you as a friend!"
And he—the man—gave honor there,
To mother-heart that, in despair
And nameless fear, was undeterred
From saving stranger's egg, and bird.
He knew her heart was big and warm
To shelter—if she could—from storm,
From every ill that brings distress,
All little birds left motherless!

MRS. FRANK A. BRECK

Caught in a Springtime Blizzard

By MARGARET A. BARTLETT, (Colo.) (In *Bird Lore*)

A BLIZZARD occurring in the midst of Spring, after weeks of warm, mild weather, when the grass has grown green, the Crocuses and Daffodils have blossomed and passed by, and the leaf-buds on the trees and bushes have swelled and partly burst from their wrappings, is hard enough on human beings who have emerged from their Winter's shell, only to be driven back, but to the birds who have arrived from the Southland, such a storm spells suffering and disaster. Yet just such a storm occurred in the mountain states of the West the latter part of April, 1920. Larks, Robins, Killdeers, Bluebirds, House Finches, all had been with us for more than a month. Morning after morning we had been awakened by their songs. The House Finches, merry little carollers, had even begun the construction of a nest in a pocket formed by the close-clinging limbs of a Poplar tree. "Summer is coming, and springtime is here!" was the thought continually with us.

And then came a sudden drop in temperature, a cold wind, and snow. For two nights and a day it snowed without ceasing, and for still another twenty-four hours the wind blew relentlessly, piling the snow in huge drifts such as we had not seen before during the Winter. Around our house the wind had swept almost a clean path. Only a half-inch or so covered it at any time, and this quickly melted as soon as even the faintest of the sun's rays struck it. The pasture across the road, flat and treeless as the top of a table, showed not one inch of bare ground; neither did the fields at the sides and back of the house. The only possible feeding-ground for the birds, therefore, was the broken circle in our yard.

There it was they came in flocks. There were, of course, the Juncos who seemed to enjoy the winter weather, and then there came the Robins. Poor birds! It was pitiful to see them run along on the snow, cocking their heads from side to side as if listening for worms, when you knew they were a foot or a foot and a half from the ground and the home of angleworms! Yet habit was so strong in them that even when they were picking up the grain and crumbs that I had thrown out, they assumed the listening attitude as they ran over the ground. When they struck the open space, however, their listening was not in vain. There were worms, many of them, drawn to the surface by the moisture from the melting snow, and the hungry Robins were quick to detect their presence and after a struggle pull them out from their hiding-places. Not just two or three Robins came around, but a dozen and more could be seen at almost any time of the day, listening for worms. The fights that ensued were many, for the Robins proved themselves very quarrelsome birds.

Once I witnessed a spirited engagement between a Robin and a Meadowlark. The Meadowlark won. With its long bill it quickly put Cock Robin to a disgraceful flight.

The Meadowlarks seemed uneasy near the house. Though they had oftentimes sung from a tree-top in the yard, or even from a fence-post, they had never before, to my knowledge, alighted in the yard. Now they were forced to do so in order to find food. They would fly down some distance from the wind-swept path, and then come cautiously waddling across the snow—there is no word but waddling which adequately describes their progress over the soft, unfamiliar snow. Though alarmed by the slightest movement at a window, they were hungry and they liked the grain. Therefore they ventured nearer and nearer the house, consuming large quantities of the grain in the short time they dared remain where danger seemed so imminent. They had no difficulty whatsoever in making way with the large kernels of grain they found: the Robins, on the other hand, ate grain much as we would eat hay! It was something to keep them alive, but they could neither relish it nor master the art of eating it daintily.

Sometime after the Meadowlarks had braved the perils of a close approach to the house, the Killdeers made tentative excursions into the yard. For long they circled about overhead, uttering their cry of "killdeer, killdeer," urged by hunger to seek food on the bit of open ground, yet fearing to approach so near a human habitation. Eventually, however, a pair of them, screaming, settled on the wet ground, within a few feet of our windows. Immediately they became absorbed in their search for food. They, too, listened for sounds of life hidden in the mud, but not in the manner of the Robins. The Killdeers did not cock their heads on one side and then on the other. They listened with heads held straight in front of the body, but oftentimes they stopped to listen, balanced on one foot or with one foot slightly in advance of the other. No difficulty at all was encountered by the Killdeers in unearthing small insect life, but when worms were heard and their position located, then there was trouble. The Killdeer's slender legs, with their high joints, were never built for bracing the body,

(Concluded on page 209)

Ideal Six Room Type of Home*

By The Architects' Small House Service Bureau of The United States, Inc.

EVER since the first Dutch colonists built homes after this style in Pennsylvania and New York state several centuries ago, the so-called Dutch Colonial type has been a favorite with American home builders. Its sturdy style is designed to wear well if built of quality materials. It is a type both comfortable and convenient in every way. The simple rectangular plan, elimination of waste space and building costs likewise make it a style of home reasonable to build.

(Copyright 1924—The Architects' Small House Service Bureau—Home Plan No. 6 A18, Northwestern Division, Inc.)

The gambrel roof produces a snug appearance. The large dormer permits bedrooms practically full height. The wide, spacious porch is a very desirable feature. Round wood columns supporting the roof of the porch increase the impression of comfort. This home is a central hall type and is adaptable to nearly every section of the country.

This house provides six good rooms and bath. It is frame construction with brick base, brick chimney, shingle roof and exterior walls finished with shingles or wide bevel siding. The plan provides a full basement.

Study of room arrangement shows how carefully this home is planned to serve every comfort and convenience of a moderate sized family. All bedrooms have cross ventilation. An inclosed sleeping porch can be used twelve months of the year.

The housewife will appreciate the linen closet in the hall, clothes chute from second floor to laundry, medicine cabinet in the bathroom. The kitchen has been designed scientifically and in accord with the modern principle of domestic economy, to lessen labor, speed up housework and save steps.

This home is adaptable to a 45 foot lot.

The cost to build this house, including heating, plumbing, lighting, painting, ready to live in but not including wall decorations, should range between $8,000 and $9,000. In certain localities where costs are high the highest figure quoted would be too low. In other localities, the lowest figure quoted would be more than sufficient. The range of $1,000 is given to cover differences in the way the house is built and how thoroughly it is equipped and completed.

*Questions addressed to the paper will be answered by the Architects' Small House Service Bureau of the United States, Inc., controlled by the American Institute of Architects and indorsed by the department of commerce, United States government. Inclose selfaddressed, stamped envelope for reply.

What you May Want to Know About Building

Q—What is the best form of insulation to use on furnace pipes?

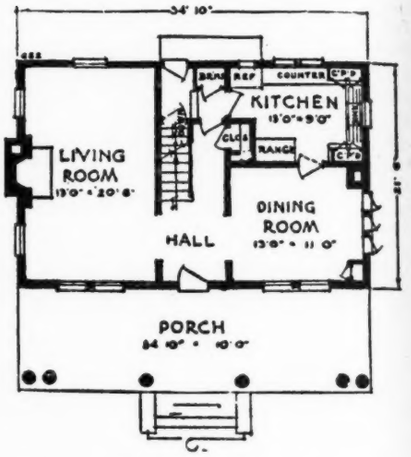
A—If you want real insulation, use some form of cellular asbestos composition—not plain asbestos paper.

Q—Some of our radiators pound continuously. What causes this, and how can they be remedied?

A—Pounding comes through faulty drainage of the piping system. Undoubtedly condensation is trapped somewhere. That is to say the pipes leading from the radiators to the furnace do not all drain downward so that pools of water stand at places. Have the radiators cleaned out and have your heating man go over the piping to see that it is properly pitched for drainage.

Q—We are having plumbing and heating systems installed in an old building. Is there not danger that the workmen will cut into the framework and weaken it? How can we be sure that they will not?

A—There is considerable danger that this will occur unless you have a good carpenter on the job to inspect the framing system and arrange for the pipes before any piping work is done. Do not let the plumber cut the joists.

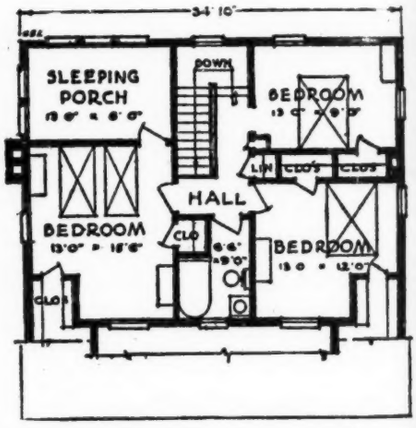


Q—How necessary is it to paint the under side of woodwork before putting it in place. Is this not quite an expensive procedure?

A—This is not an expensive process. While it is not necessary to do this painting it is still a very good practise for the finished woodwork is protected thereby. A coat of linseed oil is the thing to use.

Q—We are revarnishing our floors. How long should they stand between coats and before they are used to get the best results?

A—The floors should stand between coats until the preceding coats have hardened—no matter how long it takes. For-



ty-eight hours is the minimum. Don't walk on them until the day after they are perfectly hard.

Q—In selecting a lot on which to build our home, how can we be sure that it is worth the money we are asked and that it will not decrease in value later on?

A—See what the restrictions are. Find out whether anybody can build a shack nearby or a store or anything else that would depreciate properties generally about the location. Note the trend of the demand for lots such as you are thinking of buying. Make sure of the proper present valuation of the proposed lot by finding out what the adjoining properties are held for. Get a lot that is high and dry, preferably with trees on it. Future improvements such as sewer, water, paving, and so on will have to be added to the value of the lot. How much of this do you get now?

How Much Can You Afford to Pay for a Home?

CONSIDERING home building from an investment point of view, it is easy to see that if a landlord makes money on the rent he charges you for the privilege of living in his house, you certainly should be able to make money on a home of your own, provided you build economically and finance wisely.

Perhaps, like thousands of other people, you are trying to decide how expensive a home you can afford. Your finances may be limited, and you may be trying to determine how much you are justified in spending for a home. What follows in this and other articles to appear in this column, is intended to be helpful and to assist in answering the two questions many people ask.

First: Have I Sufficient money to start?

Second: Can I finance the building of a home?

Perhaps the easiest way of determining how expensive a home you can afford to build is to consider the rent you are paying. Budget authorities say you are justified in paying from one-fourth to one-fifth of your income in rent. If you are thrifty, it is possible you can lay aside a larger percentage for payments on a new home, for which you would sometime have a warranty deed and complete ownership.

The amount of money, however, that you can lay aside from your income for home building depends upon two things.

First, the size of your income. Second, your ability to save money each month after deducting living expenses.

Home financing experts say you are justified in building a home for which you can complete payments in about fifteen years. If, perchance, you have saved one-fifth the value of your proposed home, you should be able to pay the balance in twelve years.

For example, the cost of the lot should represent not to exceed twenty per cent, or one-fifth the total contemplated investment. If the total investment is to be $2,500. the lot should cost approximately $500, and the house $2,000. If the total investment is to be $5,000, the lot should cost somewhere near $1,000, and the house $4,000.

Suppose on a home costing $5,000, $1,000 has been paid down. The payments for this home should be complete in twelve years, that is to say, the balance, $4,000, can be met in one hundred forty-four equal monthly payments. To determine the monthly payments necessary to reduce the principal in this period, divide the balance, $4,000, by one hundred forty-four. This makes a monthly payment on the principal nearly $28 per month. Figuring interest at six per cent, the first payment is $20. Add about $14 a month for insurance, taxes and upkeep, and you have a total of $62 a month.

While this statement is a general one and used only as an example, it may assist you in determining whether a $5,000 home is too expensive for you to build, or whether you can afford a larger dwelling.

The next article to appear in this column will discuss things you must consider for a building loan.

EDITOR'S NOTE:—

As pointed out last month, nearly every reader of THE FLOWER GROWER is interested in the construction, arrangement and planning of a home. Those who are not now interested certainly should be, and it is my hope that the printing of house plans with descriptive matter, from month to month, will induce more and more people to become interested in the subject, and induce them also eventually to own their own homes. The home owner is the best type of citizen. It is *prima facie* evidence of his attachment to something permanent and worth while.

Growing the Calla

A CORRESPONDENT, who is a reader of THE FLOWER GROWER, writes and asks why the flower buds on her two large Calla plants blast and seldom produce a perfect flower. One reason, and the principal one for this trouble is that the plants have been permitted to remain in the same pots for too great a length of time so that the bulbs or tubers have got so deep in the pots that the drainage has become clogged, the soil sour, and the soil impoverished. The only remedy I can suggest is that the plants be carefully taken from the pots, all soil removed and repotted in a clean pot, using fresh soil, giving clean and perfect drainage. Of course no flowers need be expected until the plants become well established and the pots well filled with roots.

All this trouble can be avoided by planting the plants out in a deep well enriched border in the early part of May in an open sunny situation and if wanted for winter blooming taken up very carefully and repotted before the last of August. Place the tuber about half an inch below the level of the soil and do not give too much water unless the plants are growing and blooming freely—when they should be given an abundant supply both overhead and at the roots. Inside they should be given as light and sunny a situation as possible and a temperature of from fifty-five to sixty.

Although the Calla is generally considered to be a water-loving plant it soon suffers if the soil becomes sour or stagnant water is permitted to remain around the roots for any length of time.

CHAS. E. PARNELL

The Glad Philosopher's Musings

IT MIGHT surprise you to know how many people are afflicted with the malady, *phloratitewaditis*. One of the commonest symptoms is rheumatism of the wrist that prevents the signing of checks or opening the pocketbook for the purpose of purchasing bulbs or plants to beautify the home grounds. Fortunately, it is curable, being purely a mental disease; the victim of the distressing phobia usually imagining that the appearance of the surroundings outside the home is of least importance. This ridiculous hallucination gradually disappears as soon as the patient can be brought to change his mental attitude, and recovery is assured when he begins to plan improvements. The best known method of cure in desperate cases is to stimulate an interest in flower growing through the taking of some good magazine devoted to the culture of flowers like the one you are now reading.

The Editor has been preaching a lot about the importance of balance, warning against the error of following unbalanced tendencies. Balanced activities are controlled by a balanced mentality. Those who sell plants could testify to the lack of balance often observable in those who come to purchase, many of whom spend money lavishly for most everything else, but reveal downright penuriousness when it comes to buying plants for the adornment of the home grounds.

But when it comes to matters pertaining to the expenditure of money it is probably too much to expect that there always be balance of mentality back of it. If endowed with voice, couldn't the church collection plate tell some amusing incidents? Five hundred dollars worth of finery for the outward adornment of the body and a measly nickel for the extension of the cause of righteousness. What a disparity!

The law wisely provides that the maker of a will shall be of "sound mind" when creating that important instrument. To read some wills one cannot escape the impression that the authors were somewhat over-confident in the declaration of their own sanity. Perversions, such as leaving the sum total of an estate to one member of a family at the exclusion of all the others, or the bequeathing of vast fortunes for the endowment of homes for friendless cats or cemeteries for dead canary birds evidence a deplorable absence of mental equilibrium.

THE GLAD PHILOSOPHER

Too much cannot be said in favor of balanced activities and balanced interests and what the Glad Philosopher says above should be carefully pondered.—(Ed.)

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" Wherefore by their fruits ye shall know them."—JESUS

" He who sows the ground with care and diligence acquires a greater stock of religious merit than he could gain by the repetition of ten thousand prayers."—ZOROASTER

Accurate Valuation of Color in Flowers

MUSIC can be made to express every human emotion; including joy, sorrow, religious exaltation, love, anger, passion, and on down to the very lowest depths of beastial degradation. Our love for flowers, however, does not carry our emotions over any such wide range. Their appeal is in their beauty, their gayety, and even when used at funerals the desire is not to express sorrow, but sympathy. The slogan of the florists to "Sav it with Flowers" is not a request that we say everything with flowers; else Roses might be delivered minus their blooms and even their foliage, leaving only the vicious thorns; thistles might displace Carnations; and our flower shops might stand as disgraceful evidence of our selfishness, intolerance and other weaknesses.

This appeal of flowers to our finer emotions should make our task of selecting the blooms with which to express them properly a rather definite one. It is generally acknowledged that we value flowers, first, for their color; second, for their form; and lastly for their fragrance. In this article I wish to "speak out in meeting" and say that in our valuation of color we might be much more accurate and discriminating, and that by so doing our pleasure will be immeasurably increased.

I will adn.it that the same color will register differently on the optic nerves of different people, and will arouse different emotions within them, so that some latitude in color preference must be allowed. But even then, I think first of all that many of us are *careless* or *thoughtless* in our color valuation. Our enthusiasm for flowers leads us to "love them all" no matter how inferior they may be. I sometimes think that a bull, angered by the sight of a red cloth, and promptly charging the object that offends him, has more color sense than some humans. And perhaps the proverbial bull in the China shop does more good than harm. At least I have seen some China shops which would have been improved by wholesale smashing.

A PART of this carelessly overabundant acceptance of any shade of color might be diverted to a fuller appreciation of the dominant color in the vegetable kingdom, namely GREEN. There are people who never seem to realize that grass and leaves of trees and of shrubs have any color at all, let alone the fact that this simple, single color produces one of the finest effects in all nature. But let them see a shrub with variegated foliage, hideous though it be, and they are thrown into ecstasies of delight. Again, many fail to bear in mind in making color combinations with flowers that the green of the foliage plays an important part in the total color effect, that therefore as the number of colors must include the green, the possible combinations are restricted. Two or three colors may blend properly while the addition of one more may spoil the whole thing. Not many people would enthuse over a blue color card placed beside a green one, yet in nature we find many blue flowers growing on plants with green foliage. Nature has a wonderful way of making these two colors harmonize in spite of their inherent tendency to quarrel. One way she does it is to make the blue so very blue or so very "true" that it overrides this element of discord. But when mankind starts putting blue flowers in a mixed bouquet, many clashes arise which are only too often ignored. If all foliage is kept out, it is then safer to go ahead with our blues, purples and lavenders in combinations with the pinks or orange or other shades, but the grace of the bouquet is diminished. I must confess that my liking for blue flowers, or lavender or purple is very much less than that which many people express, and I ascribe it to this inherent lack of harmony between the flowers and the green of the foliage. And when I do have blue flowers, I want them in the simplest of color effects, better in a solid mass of the one shade, like the blue Siberian Iris, and without even a beautifully contrasting white or yellow so long as the green of the foliage is at all important. The white and green or the yellow and green make the harmonious combination, and blue becomes the discordant not the dominant member.

FROM a scientific standpoint I may be entirely wrong in feeling this way about blue flowers. But I have in a way digressed from my subject to state my side of this case because I believe that most of our difficulties in color valuation arise from the admixture of some blue or allied color with other colors; namely: With white, red or yellow, which mixing lowers the color value of the flower which shows it. An absolutely clear red Peony would certainly be better than one that is purple-red. *Phillippe Rivoire* is undoubtedly our finest dark red Peony to date, yet it is a purple-red. The pink Peony *Walter Faxon* seems to have broken away from this purple curse, and a large vase of blooms is a wondrous sight. May we some day have other shades of pink Peonies, and also red ones which do not show any of the purple cast.

One of the soundest methods of wall decoration is what is called "two tone" coloring. Side walls, for instance. may be a medium brown. By the addition of white, we get a lighter shade of brown for the ceiling, and the two colors harmonize perfectly. How much finer, similarly, would our Peonies all be, if our different shades of pink and red could be obtained by dilution with white, rather than purple or lavender or whatever it is that makes so many Peonies inferior in color. Possibly one who has seen only the finest varieties of Peonies now in commerce will not get the full import of this point as well as those of us who have seen many, many poorly colored seedlings bloom for the first time and shatter our hopes for something good.

WHAT might be called "half-mixed" colors seem to me to be a condemning feature of many flowers. By this I do not mean that a flower to be good must be one solid color, without gradation of tints. When a boy I often watched the house painters hand mix their paints just before using, and I thought they mixed them just about twice as long as was necessary, but they could see better than I the need of a thorough job. Take the two Peonies *Lady Alexandra Duff* and *Madame Jules Dessert;* both are rated very high in the Symposium of the Peony Society, yet I must be frank to say they have little or no charm

for me, because of this *unmixed* quality of color. In decided contrast take *Therese*, certainly one of the three or four finest Peonies now available. It not only is not a solid pink, running from almost milk white to a very decided tint, but is a *lilaceous* pink which is ordinarily objectionable in a Peony. *But* the color is so thoroughly mixed that it is irresistible. *Tourangelle*, in a more nearly uniform shade of pink is very fine in this regard. The greatest fault in many of our recent Peony introductions is this quality of unmixed color, and I attribute it to the use of the more recent varieties as seed parents which are already a hodge podge of color tendencies. I must admit I have planted seed from *Lady Alexandra Duff*, but with not near the expectation that I have from that of *Edulis Superba* for instance. While I am on the subject of Peonies, let me say for the benefit of those who *do* like lavender flowers that there are two very fine lavender Peonies, *Mme. Emile Galle* and *Madame Lemonier*, Calot 1860 (not *Madame Lemoinier*, Calot 1865).

WHILE the proportion of flowers in solid colors is rather small; still I think them usually the finest; first, because they make an unmistakable appeal with their one color; second and equally important, because they in no way detract from or conflict with the second great appeal of flowers, namely, their *form*. The Madonna Lily, pure white and most graceful, to me is much finer than the new Regal Lily, with its streaks of color, even though we must have the latter on account of its many good points in other regards. Also, a good Gladiolus has a wonderful charm of form, and in nine times out of ten it is best displayed in a bloom of one color. I could never enthuse over the variety *Mrs. Frank Pendleton*. It undoubtedly has been tremendously popular, and was a big advance when it came out, on account of its fine habits, but those blotches in the throat place a handicap on it that makes me perfectly willing to hunt for something else. Occasionally we get a variety like *Evelyn Kirtland* where the variations in color pattern seem to really enhance the beauty of form, but these are the exception rather than the rule. The statue of the Venus de Milo was made of white marble, and it has stood the critical admiration of centuries; yet I doubt whether any one ever expressed regret that it was not carved out of variegated marble instead. Neither should we accord full approval to variegated Gladioli as a matter of course. The variety *Dorothy McKibbin* is wonderfully prolific and vigorous, yet its speckled blooms appeal to me not at all. Complaint is made that we have too many kinds of Gladioli, which is true, and I think one great reason is because Gladiolus fanciers have been too lax in color valuation. Already a tendency toward improvement is noted among these fanciers, but there is still room for vast improvement in this regard. In the use of the XXXX rating it has seemed to me color did not enter into consideration at all, but that any Gladiolus which had good plant habit, large blooms, etc., was accorded this rating. No flower gives a greater variety of color, and if we must have these blues and lavenders and purples, let us by all means have them in solid colors if possible. And let me advise that a percentage system of rating would be an improvement, but that in it color be given at least thirty-five to forty points.

WITH the common or bearded Iris, the need of accurate color valuation is especially apparent. In this family we have at the same time some of the finest and also some of the most inferior color effects. While there is at the present time some effort being made to limit the number of varieties by discarding the inferior ones, the chief effort, if I am correctly informed, is with varieties already in commerce, whereas the number of new kinds of very inferior color value seems to increase almost unrestrained. The rating given several varieties by the combined votes of twenty-five experienced Iris fanciers has often been assailed, and I believe justly so. I am willing to grant that an Iris may be a most wonderful asset to a hybridizer, but at the same time I believe it may be absolutely worthless as a flower for the public. Some variety may be as homely as the back side of a mud fence and still have qualities of growth, such as substance, vigor, height of flower stalk, etc., which make it worth working with, and I have often thought that those who voted in that Iris symposium may have laid too much emphasis on qualities valuable in hybridizing. And when we are asked to buy at high prices not merely a few, but many new Irises which in color are absolutely inferior, then I think an objection is not out of place. The Iris score card in Bulletin No. 2 of the Iris Society definitely allots only fifteen points out of one hundred to color. That means that we might have a variety with color worth absolute zero, but that still rated 85, which would supposedly be worthy of consideration by the general public, but which as a matter of fact should have a rating of about 60, and so give warning to anybody who wanted to try it. Beautiful form in an Iris is almost universal, height while desirable is not absolutely essential, but good color *is* absolutely essential.

Just as with Gladioli, I believe the solid colors are best in the Iris, and if we have contrasting colors we should be certain that they are harmonious. Many of them are not, and should be discarded. Also, we should accept grudgingly any varieties with coarse or too prominent venation in the falls; those with falls margined lighter or some other color than the center; and also those dotted or blotched. Occasionally we find a good oddity, such as *Madame Chobaut*, but these are comparatively rare. The too little known Siberian Iris *Distinction* is another example of added beauty from venation and pattern on the falls, while to my mind the popular *Monsignor* is entirely unworthy of consideration, because of the washed out edges.

THE florists' shops are often filled with glaring examples of inferior color. They defend their offerings by saying they provide what the public wants, which is probably almost true. And if it is, it only shows this need of color valuation by the great body of flower lovers. I have looked over the Sweet Peas in a florist's box, and failed to find a single color that I cared to take home; and I have shuddered at the sight of a bunch of *American Legion* Roses. Surely the profits of the florist will ultimately increase if he will discriminate and not leave it all to the public. And maybe some day it will really be true when one says that the commercial value of a flower is its ultimate test.

The purpose of this article is not to claim authority, nor to say that "A" is always good and "B" is always bad, but rather to make a plea for careful consideration of this most important item of color, claiming that thereby our pleasure will be increased immeasurably, and that progress will be most effectively aided. One of the great delights of flower growing is that we can do as we please. If we like blue flowers, we can have them. I raise blue flowers myself, and lavender ones and purple, in spite of all I have said against them in this article. But, in so doing, I strive to have these colors *at their best* and not in the half-way so easy to obtain.

And just one more point—get your colors from the flowers so endowed by nature: Get your blue from a Siberian Iris and not from a Rose; your white from a Poeticus Narcissus and not from a Large Trumpet variety; your lilac from a Lilac and not from a Gladiolus, and in Tulips get your white from the early varieties and not from the Darwins.

EDWARD AUTEN, JR.

Classification of Exhibitors at Flower Shows

THE separating or classification of exhibitors at flower shows has always been a moot problem. While comparatively few exhibitors are inclined to wrongly classify themselves, yet certain abuses have been prevalent and the classification ought to be so arranged that there will be no opportunity for argument. The prize schedule of the Autumn Flower Show of the Women's Club, of Pitman, N. J., which may serve as a model for others, classifies exhibitors as follows:

> PROFESSIONALS—Are all commercial growers, professional gardeners, nurserymen, florists or any person hiring a professional gardener.
>
> SEMI-PROFESSIONALS—Are those who do not hire a professional gardener and who do not make a livelihood from flowers, but sell or trade flowers for profit.
>
> AMATEURS—Are those who grow flowers for pleasure and do not sell or trade for profit.

Now it would seem that this classification is absolutely fair to all concerned, and it contains some common sense features that have not before been worked into a prize list, so far as noted by the Editor, and is essentially the same as he has for many years fought for. It is difficult, indeed, to make arbitrary classes between amateurs and professionals. There is no clearly drawn line. Some are inclined to make any flower grower a professional who sells from his garden, even to the extent of so small a sum as one American red cent. The American Gladiolus Society divides exhibitors into *open class, non-commercial class,* and *amateur class.* Practically, that is what the Women's Club of Pitman does in the above specification. And it seems altogether fair and reasonable. Because a man sells from his garden it does not make him a professional; but it is a sure thing that if a person of wealth employs a trained gardener, the flowers which he grows are just as much the product of a professional as though he conducted a commercial establishment. Then again the man who does his own gardening, employing no trained assistants, even though he sells to a considerable extent, and providing he has another line of business as his main source of income, is not a professional.

Some classifications have attempted to define the amateur, by limiting him, for instance, to the growing of, say, one thousand bulbs, and this, on the face of it, is quite ridiculous.

As a matter of plain fact, exhibitors can, for the most part, classify themselves, as an exhibitor cannot, and will not, enter repeatedly in a class to which he is not entitled.

The Editor begs to offer some further suggestions to those who prepare flower show prize lists, which will classify exhibitors to a certain extent, and which will be altogether fair to all exhibitors.

A PRIZE schedule should, first of all, be arranged chiefly with respect to color classifications, and it is to be regretted that to considerable extent this rather ancient and time-honored method has been abandoned by some organizations during the past few years. To the average flower show visitor, it is a distinct advantage to have the color sections arranged so that one may view the white flowers, the pink flowers, the red flowers, the blue flowers, the yellow flowers and those of mixed colors separately. Many flower shows are nothing but a hodgepodge, and a jumble, from which none but the skilled and experienced person can get an intelligent impression.

Here is the gist of the suggestion: A show arranged in color classes will have prizes for twenty-five blooms, we will say; then in the same colors, another class for twelve blooms; and then in still another class prizes for six blooms; and perhaps a fourth with prizes for three blooms. Here is where it is possible to let the exhibitor classify himself. If he grows stock enough to stage twenty-five spikes of bloom at the flower show he ought to be able to compete with professionals. If he is perhaps an advanced amateur and can stage only twelve spikes of blooms he would be essentially what has been a non-commercial grower. Then the amateurs easily divide themselves into the experienced or advanced amateur class, who can stage say six blooms or spikes of one variety; and the novice or beginner amateur class, who can stage but three spikes of bloom.

The details of this suggestion are left to be worked out by those in charge of flower show prize lists.

HERE is the main point: The larger number of blooms clearly demand the larger prizes, and the smaller number of blooms the smaller prizes in proportion. The exhibitor who stages twenty-five spikes of bloom clearly should not be allowed to compete in the twelve spike, six spike or three spike classes. The exhibitor who shows in the twelve spike classes disqualifies himself for the six spike and three spike classes, etc. In short, the suggestions contained above make it unnecessary to provide especially for the classification of exhibitors. The exhibitors classify themselves by their own ability to stage a larger or smaller number of flowers in any one color.

But it need not be thought that all of the schedule should be in the color classes, although this should be the chief feature of any flower show. A few "specials" may be offered, and these can easily be separated into three general classes under a similar specification to the one adopted by the Women's Club of Pitman, above referred to.

While these suggestions are offered without giving thought to all the details, as the Editor has been an exhibitor at flower shows for ten years or more, he feels the desirability of something along this line, and believes that it will be easily arranged, and would urge that flower show committees give attention to the matter at once.

DON'T forget that it is of the utmost importance that flowers be classified according to color. From an educational standpoint it is of great advantage to those who attend flower shows for the first time to be able to get a *comprehensive idea* of same and it cannot be done as the average flower show is generally arranged. It is of even more importance to the commercial grower to have different varieties compete closely in the different color classes, so that he may form an idea of the merits of each variety, one as compared with another. The average flower show, to the man of trained and orderly mind, is little short of distracting, instead of soothing and inspiring as it should be.

Too many special prize offers of bulbs, etc., for special stagings should not be allowed. Donors should not have the entire say of what their donations are to be offered for, and donations of prizes which do not meet the approval of the flower show committee ought to be rejected.

And now, my brothers of the flower shows, you have it straight and without reservation. Criticise the suggestion—the more the better. It is important that this question of flower show schedules be more fully worked out and the exhibitors really CLASSIFIED.

MADISON COOPER

Golf vs. Gardening

Read what my friend, Will S. Guthrie, of Oklahoma City, has to say about golf and gardening on another page of THE FLOWER GROWER. Now let the golfers rally to the defense of their favorite game. Guthrie makes an argument that will be difficult to overcome. THE FLOWER GROWER is open to both sides to make out the best case they can.

Are Cattle Superior to Men?

DR. CARMICHAEL, on another page in this issue, offers some interesting suggestions in amplification of the suggestions contained in an editorial under this same title in the January issue. Some of his arguments covering the subject of natural conditions for both men and animals are hardly consistent with the facts, and do not bolster his theory.

It is no use to compare a race of domestic animals which has been developed by thought and study on the part of man, for definite characteristics of advantage to man, with the human race, which has developed by natural selection, in so far as what either the animals or man might do if returned to a natural state. Surely our domestic race of cattle, for instance, would do as well if turned out into the wild as the average individual of the human race would do, if also turned out into the wild. It would be well, therefore, to forget any such comparison. Both the human race and the races of domesticated animals are living under artificial, even if actually improved, conditions. And, therefore, what they might do if turned back into a natural state should have little bearing in connection with our study.

But what Dr. Carmichael points out as a suggestion for true development of the human race reads well, and analyzes well. His plea for qualities which will bring happiness to humanity, and for individual liberty in seeking this happiness, is well thought out and seems based on correct principles. Individual liberty, curtailed to the extent of subordination to the general welfare of the race, seems absolutely necessary for the highest spiritual progress. And, as Dr. Carmichael points out, the master worker in all lines of human activity is the one who most nearly realizes true happiness.

"THE pursuit of happiness," which right is guaranteed to Americans under their Great Charter, may easily be misconstrued; and the word "happiness" has a vastly different meaning depending on varying education and ideals. The person of highest ideals with *balanced* reasoning powers is one who gets the greatest true happiness out of life. But that word "happiness" may easily be distrusted. Happiness to some people means a big time, and the maximum of entertainment and wasted time. That this is incorrect in its ultimate working out few will question.

Different people engage in "the pursuit of happiness" in different ways. Some pursue happiness in an automobile. The pace is so swift that happiness is killed before she is overtaken. Others pursue happiness with weapons of destruction and happiness dies before they come up with her. But the person who pursues happiness as a sportsman, for a pure love of the chase, really gets the most out of the game, although he never overtakes her in fact.

Those having the best gauge of what happiness really is, know that it is only in the *pursuit* of happiness that they gain strength, development, and satisfaction, and not in actual possession. Happiness is, indeed, only a fleeting ideal.

"The race is not to the swift, nor the battle to the strong."

MADISON COOPER

We are honored this month by an original article by Lora S. La Mance, now a resident of Florida. Mrs. La Mance is best known to a large number of flower growers through having edited John Lewis Childs' magazine, *The Mayflower*, during its period of greatest circulation and popularity. Of recent years she has been engaged in organization and lecturing work in various parts of the country.

The Gift of Arbutus

New England breathed on me to-day
From out a crumpled box:
Her breath was sweet
As baby feet,
As soft as fairy locks.

One whiff, and I was back again,
A child on Vermont hills,—
A maiden shy,
With lover nigh,
Beside New Hampshire's rills.

I saw Spring smile a welcome gay,
The while she waved her wand,
Which made to go
The ling'ring snow,
And ice on lake and pond.

And felt beneath my weary feet
The cool, damp floor of woods,
Where, after sleep,
There shyly peep
From out their winter hoods

The Flower of May, New England's pride,
The Arbutus that trails
So bravely on,
Beneath the storm
And early Springtime gales.

Once more upon a sunny slope
I drop on hands and knees,
And scrape the ground,
And search around
Till I have unearthed—THESE!

A bunch of blossoms, faded brown,
Yet sweet as air in May—
New England's breath,
Still sweet in Death—
My gift from home to-day!

MARGARET A. BARTLETT,
(Colorado)

Worrying

Worrying, fretting and worrying.
First the cold,
And then the heat;
And then a dog
From the city street,
Giving a party to his feet
In the new turned soil
Of your garden plot.
Next the mildew and the bugs,
Rust and leaf-curl, aphis and slugs;
Some brand new pest,
As likely as not.

Then, after anxious, worrying hours,
A riotous glory of beautiful flowers,
That you'd have secured,
You can rest assured,
With the troubles ignored, or as easily cured,
Without the
Worrying, fretting and worrying.

OSCAR E. JENSEN

Nature's Opening Days in the Country

APRIL and May are the months of expectancy. We are constantly watching for the return of the birds; for the pushing through the soil of the plants we care for; for the opening of the flowers in garden, woods, and fields; for the leafing and the blossoming of the trees. Our ears and our eyes are alert.

All the days are interesting, but occasionally there is a marked day, as when one sees, for the first time, a tufted Titmouse taking his breakfast from the suet which you have put out for such as he; or when you get your first glimpse of a Blackburnian Warbler, or when you find the first blossom of the trailing Arbutus, or perhaps when you discover the home of the Moccasin Flower.

This day in early May, of which I write, had no great surprises, but it was a revealing and a refreshing day. Before breakfast I had discovered that a wild Geranium had blossomed, and that the tiny green Grape clusters were becoming exquisitely tipped with light purple.

Later in the morning, hoe in hand, I started down a long lane to my Strawberry patch. On each side of the patch the mustard was flaunting its yellow blossoms, but each morning its chances of peopling the earth were lessening, for I made use of my hoe as I went along. I noticed that the plantain was becoming conspicuous and planned to attack it when the mustard was conquered.

From the meadow across the road I heard the field Sparrow. What other bird, confined to so limited a range in the musical scale, could furnish such a lively pleasing song? A Bluebird flew across my path, that was for good luck. A pair of Robins scolded. How foolish of them to betray the fact that they had a nest nearby! From a little grove which borders my garden, the woodsy notes of the wood Thrush thrilled me. The Maryland Yellowthroat taunted me with his "Witchy, witchy, witch"; but I called back: "The same to you." Over and over the Baltimore Oriole uttered his loud, whimsical, somewhat plaintive call. I had taken my field glasses with me, but my Strawberry plants needed my care. Bird hunting and weed exterminating do not go hand in hand. I decided to go bird hunting at another time.

WHEN I arrived at my garden I found the bindweed pushing up everywhere. One can almost see it grow. I had learned how to attack this foe. I threw down my hoe, pulled up these weeds and threw them out of my garden where the sun and the wind could complete their destruction. No part of the root must be left. It is all alive and doesn't mind being chopped to pieces if it may remain in the ground. The bindweed mingles often with the grass, which in this place is an abomination and must suffer the same fate as the bindweed. It seems strange that grass grows so luxuriantly in gardens where it is *not* wanted, when often it has to be coddled to get it to make a stand on the lawn where it *is* wanted..

Among my garden enemies was the little yellow Oxalis, which I had always admired as a flower. When it was found to be a weed my attitude toward it changed. What a pity that so dainty a plant should choose hogweed and ragweed as associates.

I noticed hosts of little purple weeds springing up. They were strangers to me, but I should learn later what they are. I like to identify plants by myself. This same morning I learned how the tiny plantains look, for on the ground I found a long seed stalk, and by it, running its whole length, were hundreds of tiny plants.

MY LITTLE new Strawberry plants were helping to crowd out the weeds. Clusters of buds appeared on many of the plants, and two big blossoms on one plant. All of these I picked off, for during this first season, the work of the plants was simply to grow. I gave them the best of care with the full assurance that they would produce when the time came for them to do so.

As I returned home through a field, I passed a patch of Cinquefoil and wild Strawberries, their blossoms making a most pleasing combination of white and gold. I noted also chickweed in blossom. I have a kindly feeling for these little blossoms, but I saw trouble ahead when this persistent plant should invade my garden.

This morning the Oaks were most beautiful, some in sage green, others in delicate tints of scarlet.

I went into the house with the feeling that if every person could live in the country and have an appreciation of what is to be found there; self-seeking, pride, and brutality would vanish from the earth.

L. B. M.

The Gladiolus in 1866

UNDER the above heading in the Gladiolus department this month I am printing extracts from a book published in 1866, which were sent by my friend, W. J. Drew, of New Hampshire.

Mr. Drew calls attention to the fact that none of the varieties mentioned, except *Brenchleyensis* are in commerce, but it is probable that the *Eldorado* which is now in commerce is the same as the one mentioned then, as it is a small flowered, deep yellow, with dark blotch and doubtless one of the original Lemoine varieties.

But the chief point of interest in connection with this matter is the fact that the author of the book mentioned, predicted in 1866 that the day was not far distant when a large proportion of imported varieties would be thrown out of cultivation by American seedlings. Although this has come to pass to an extent, it does not mean that the foreign introductions have ceased to interest us. In fact, although American originators have made rapid progress it may be said that foreign originators have made rapid progress, too, and many of the varieties in commerce today, and many of the new introductions of merit, are of foreign origin.

Another point of interest, however, is the suggestion that *"all the world are raising seedling Gladioli,"* and the anxiety expressed over the large number, and the danger of an overproduction of varieties, is just about the same as we hear today. The book suggests a Gladiolus convention as a remedy. Well, we have a Gladiolus convention each year and we have various Gladiolus organizations, but the originating and introduction of new varieties is carried on much the same as it was in 1866.

Anyone can originate and introduce a new variety without going through any particular process of test, certification, etc. But this is not as it should be, and probably not as it will be when the business is better systematized, and the next few years should see rapid strides along this line.

The registration, testing out and certification of varieties of merit seems to be absolutely necessary, although subject to all the weaknesses that anything depending on the human element is necessarily subject to. The origination of new varieties and the selling of same to the public has been making such rapid strides, during the past few years especially, that introducers have not found it necessary to have their varieties tested out before introduction. Whether this will lead to calamity as predicted is a question.

Growers were worried in the same way in 1866 as they are now, and these things will right themselves in due time without undue anxiety or grief on the part of those most interested. But organization and co-operation will help enormously.

MADISON COOPER

Newcomers in the Citrus Family

BY LORA S. LA MANCE, (Florida)

EVERYBODY knows that Oranges, Lemons, Limes, Kum-quats and Grapefruit belong to the great Citrus family. Everyone sees them in market. Those who live where Jack Frost reigns almost envy those who can raise these fruits for themselves and pick them ripe off from the tree.

But everybody does not know that these familiar Citrus fruits by no means exhaust the list of Citrus fruits that favored Florida and California can raise. There are many crosses between branches of the family, for they hybridize under expert methods. Then there are new species being introduced. It gives the man who likes to raise something out of the ordinary, great pleasure to try some of these new things.

The Kum-quat is that beautiful little Japanese Citrus, occasionally seen in northern markets. It would be of more commercial value if it were better understood how to use it. Those lovely, fairy-like, oblong fruits of a glowing red-gold, are most pleasing to the eye, but sour enough in the raw state, and bitter enough when cooked, if one does not know how to do it. The experienced Florida housekeeper cooks them in three waters, throwing these waters away. The bitter disappears with the hot water. When soft enough that a straw will easily pierce these whole fruits, they are dropped into thick syrup a few moments and are then most delicious, and are as lovely in their golden yellow as can be imagined. The surplus juice jellies into a pleasant tasting and most beautiful clear amber jelly.

The Kum-quat is much hardier than the ordinary Orange, and doubtless can be grown in many places in the lower tier of southern states. It makes a large bush or small tree, wonderfully attractive nine months of the year with its show of richly colored fruit.

All Citrus fruits transplant readily even if of large size, if defoliated and cut back well when moved. It is nothing uncommon to see Orange and Grapefruit moved that have been in bearing two or three years. The foliage is removed and all small branches trimmed off, and the main limbs cut back so that the stumps are as thick as a man's wrist; yet in a year they are as thrifty as ever and full of fruit.

A certain fruit grower had a bearing grove of Kum-quats, and wished to lay the tract off into town lots. He offered them at $15.00 each and guaranteed them to bear the next year. He sold every tree as an ornamental shrub for the yard, and every one of them was in full bearing in a year.

Next to the Kum-quat, Tangerines and Mandarins, which like the Satsuma, are small, flat, "kid-glove" Oranges, are the most attractive when in fruit, because of their rich, burnished, red-gold color. They are delightful eating because so sweet.

Oranges are as good to look upon as they are good to eat. Grapefruit, Lemons and Limes are less richly colored, but are not to be spared from any Citrus planting.

There are Rangure Limes, as red-gold in color as the Tangarine itself; Otaheite Limes, the size of a small Lemon; Limequats, the most beautiful golden-yellow, and the size and shape of the daintily small, "finger-shaped" Kum-quat. It is a cross between the Lime and the Kum-quat.

There is an unnamed hybrid between the Lemon and the Grapefruit. It looks like a Grapefruit, but has an acid base that requires considerable sugar to make it palatable; on the other hand, the Tangelo, which is a cross between the Tangerine and the Grapefruit (Pomelo) is sweet enough to eat out of hand. It is larger than an Orange and smaller than a Grapefruit, and in color is a fine straw color. It bids fair to be of commercial value.

The Calamondin (citrus mitis) is a species recently introduced. It is a small tree or large shrub from the Philippines, with fruit the size of a small Mexican Lime, and as acid. It is claimed that it is hardy enough to be grown in many of the southern states, and will prove valuable as the basis of a pleasant acid drink.

Though no dealer catalogues the trees, there are sometimes seen in Florida good specimens of the commercial Citron, (Citron citronis). It can be pruned into shapely bushes, quite showy, if staked so as to support the enormous fruits, as big as small Squashes. If left to itself, it makes a low tree or spreading shrub, with the awkwardest of long, sprawling branches. A bush under five feet in height, has long, almost vine-like branches, and will bear a dozen or two of enormous fruits, each from four to seven and one-half pounds in weight. At Saint Cloud, Florida, they sell them at fifteen cents each, no matter what the size. One of them, when cut up for preserves, will fill a large crock. The preserves are much esteemed. They are cut into inch and one-half cubes, soaked in strong salt water twenty-four hours; boiling water is poured on them, and allowed to stand over them until cool. This is repeated three times. They are tender enough now that a straw will pierce them. They are then plunged in hot, clear syrup, flavored with lemon or ginger, and allowed to cook ten minutes. The preserve is honey sweet, and as white as snow. For making the candied citron for cake, the salt bath and hot water parboilings are followed; but the half-fruits are simmered several times in thick syrup, until the tissues can absorb no more, and are then dried.

Lotus from Seed

THE articles on the Lotus which have been running in THE FLOWER GROWER are the best I have ever read, and I have a book on water gardening, having a Lily pond in which I raise the fancy Japanese goldfish. I have grown the Lotus very successfully from seed and will tell how I do it.

Almost every family has several worn out porcelain kettles or stew pans with a wire handle like a bucket. I made use of these, using a very good garden soil, and after filing through the hard outside shell of the seeds I soaked them in a glass of quite warm water until the germ began to push itself out and split the shell. Then about one to two seeds were planted in each porcelain or granite pan, and then they were placed in the Lily pool under about one inch of water. Within a few days the seed split open and one or two small leaves floated on the surface of the water. They were kept in these pans the first year, then transferred, (mud and all), into tubs, by sliding the wet mud and roots all together in one mass, being kept another year in a tub. They produced leaves on stiff stems. The following Spring the same process was used and without injuring the tender shoots the mud and roots in a mass were transferred to the present location and their last season's growth made shoots at least ten feet in length. This year I expect to see blossoms from these seedling Lotus plants.

I suppose they could have been transferred directly to the pool from the stew pans but I was making a new pool and didn't want to injure them by transplanting so often and after they had made such large growth. Perhaps this will help some one else to raise a few seedling Lotus plants.

JOHN B. DREIBELBIS

THE FLOWER GROWER gets Approval from Abroad

One of my old friends, in sending us the subscription of a member of the royal family of Czecho-Slovakia, writes that this lady chose THE FLOWER GROWER as *the one* horticultural journal that she wished to subscribe to, after seeing all the others when she was in this country last Autumn. This is a fine tribute to the international character of THE FLOWER GROWER. It may be noticed incidentally, that THE FLOWER GROWER is also being selected now by a very large number of The Great American Middle-class people, and that the subscription list of THE FLOWER GROWER is gaining more rapidly now than ever before, and perhaps more rapidly than any other horticultural magazine. That this magazine has a different appeal than any other publication in the world, there is no doubt. My friends tell me that THE FLOWER GROWER has a friendly, homely and intimate quality which they do not sense in any other magazine.

Our Poultry and Pets---The Peafowls

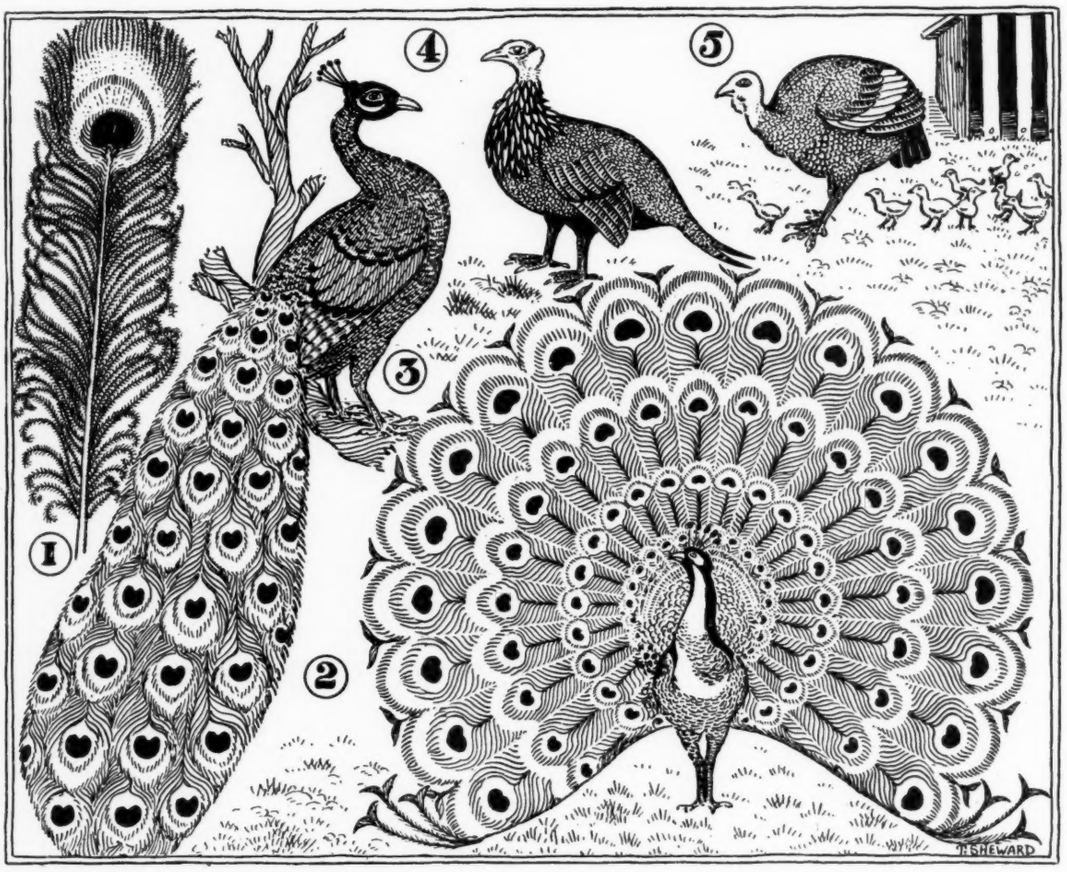
BY T. SHEWARD

THE Common Peafowls have been domesticated for thousands of years in the East, and are found in a wild state in India, from which country they were introduced into Europe by Alexander, 300 years B. C. In ancient times the tail feathers of the Peacock (I), were used for decorating thrones and shrines, and the bird was made sacred to Juno, the Greek Goddess. They are still worshipped in some parts of India, and many Hindu temples keep large flocks of these birds.

In their native country the Peafowls always prefer to roost (3) in trees; a habit they still retain under domestication. Their food, (when wild) consists of insects, small frogs, snails, and lizards; but under domestication they are fed on wheat and scraps. They will, if allowed free range, add to this diet, other things which suits their taste.

There are several varieties of Peafowl: The common varieties which are most often met with; the White Peafowl; sports of the common kind; the Javan Peafowl, very rarely seen in America; and the Black-winged Peafowl of Japan. The common Peafowl only, has been domesticated in this country to any extent, and generally on large private estates, where they are prized for the beauty of their tail feathers, (2).

They thrive in any locality suitable for Turkeys, and a Turkey hen (5) makes a better foster mother for raising the young, than the Peahen, which is shown at (4). One Cock bird to four hens is considered about right to produce fertile eggs. For setting, turkeys are generally used, because of their greater domesticity.



Gaillardia

GAILLARDIA grandiflora, or as it is popularly known the Basket Flower, is when well grown and properly cared for a hardy perennial plant that is unequalled from the middle of June until cool freezing weather sets in, and on this account is a very showy plant for mixed flower beds or borders. In cultivation it forms a clump or cluster of finely laciniated leaves about two feet in height, by as much in breadth, from which there arises numerous straight wiry stems, on which the daisy-like various colored blossoms are borne, and they generally appear in circles of unusual highly colored contrasts, such as crimson and gold, crimson and vermilion, etc. The old flowers should be removed as soon as they commence to fade in order to insure a continuous and profusion of bloom and insure robust plants.

In cultivation this Gaillardia should be given an open sunny situation, a very deep well enriched soil, and sufficient space in which to properly develop itself. In the winter months a mulch of some littery manure should be given and when this is removed in the early Spring let some well rotted manure or leaf mould be carefully worked in around the plants.

Propagation is effected by a careful division of the older clumps and this should be done as early in the Spring as possible and these can be sown as early as possible in a nicely prepared border in a warm sheltered situation. Sow thinly, and as soon as the plants are large enough to handle let them be removed to another border similarly prepared and placed in rows about four inches apart each way where they can remain until they are transferred to the mixed flower bed or border.

CHAS. E. PARNELL

Timely Suggestions for May

BY BERTHA BERBERT-HAMMOND

(Southern New York)

"Maytime is here!
I know that a blossom is somewhere near
For the south wind tosses into my room
A hint of Summer—a vague perfume."

MAYTIME, that charming season, is with us! In Nature's garden early wildlings are in evidence, and in the garden early blooming varieties of flowers are in flower. The meadows are clothed in the delicate green that belongs to new grass, and in the air pervades that peculiar odor of freshly turned soil, for in the Northern states Maytime is synonymous with planting time, and everywhere gardeners are busily engaged in digging, raking and sowing.

As soon as the soil is dry enough to be properly worked, have the flower beds spaded deeply and well rotted fertilizer thoroughly incorporated. The surface should then be raked until the soil is finely powdered. Sow seeds in rows, each kind in a small section by itself. As weeds do not usually come up in rows, the seedlings can then be readily distinguished from weeds even when they are very small. Thin the rows if needful; later transplant seedlings to a larger bed.

Sow in the open, Poppies, Pansies, Petunias, Phlox, Balsams, Verbenas, Sweet Alyssum, Cosmos, Nasturtiums, Coxcombs, Candytuft, Mignonette, etc. As soon as the weather will permit, seedlings that have been started indoors may be planted out, selecting a cloudy day on which to do the transplanting. Water well, mulch to keep the plants moist, and provide some sort of protection from the direct rays of the sun, and from a drop in temperature.

Awaken and keep active the enthusiasm of the children by allotting to each the exclusive use of a small plot of ground for a garden. After the work of preparing the land for planting has been done for them, they can readily do the planting, cultivating and weeding. Though the venture will demand many hours of toil, the healthful work will prove interesting and profitable, and will develop the children physically and mentally.

Indoor seedlings will require plenty of water and fresh air. If the temperature of plant room is kept too high, the growth of spindling plants is encouraged. Seedlings of this kind do not have the stamina to withstand the shock of transplanting into the open where they will be subjected to changes in temperature besides. Pinching back induces the formation of stocky, branching plants.

Take advantage of warm pleasant days to "harden off" seedlings, cuttings and house plants, so that the transition from indoors to the open will not be too great a change. After the middle of the month will be early enough for transferring the hardier sorts of window plants from the house to some sheltered corner or porch. By Memorial Day all sorts of plants may be put into permanent places outdoors.

The plants in hotbeds and cold frames demand considerable care and attention at this time. On sunny days they must be protected so that they will not be scorched by the action of the hot rays of the sun on the glass. On balmy days the frames may be opened for thorough ventilation, but should be closed at night as a precaution against injury from the unexpected frosts that sometimes visit this section. Lowell remarked that "May is a pious fraud of the almanac."

Unless the space is required for other plantings, the bulbs of Tulips and Hyacinths need not be taken up each year. If they are to be removed they should first be allowed to ripen. When dug immediately after they have ceased to bloom, the bulbs should be planted in a trench in some out-of-the-way place until the foliage turns yellow. They may then be taken out of the ground, dried off, and stored until planting time in the Fall.

Plant Gladioli quite deeply in a sunny, well-drained situation. Plant them freely for cut flowers and for a fine garden display. Blooming size corms of good varieties are not expensive and multiply quite rapidly. Their cultivation is simple, and the flowers of the improved varieties with the wide range of coloring and markings are very beautiful. By making plantings at intervals of ten days until the end of June, a succession of glorious bloom may be secured.

Divide such perennials that may have been overlooked; cultivate newly planted shrubs and trees; and water when necessary. Give attention to Sweet Peas. They require plenty of moisture, and should be kept free of weeds. Provide brush or wire netting or strings for their support. Prepare to wage war against the pests that may attack your Roses or other plantings. Prevention is better than a cure.

Be ready to fight weeds. As soon as they begin to appear, use the hand hoe or wheel cultivator, so that the weeds may not be able to establish themselves. Constant cultivation will benefit your plants, and assure comparative freedom from weeds. In garden paths and on the roadway, a few applications of a commercial weed destroyer will give results. Hot brine, a solution of lime and sulphur, carbolic acid, and other solutions prepared at home may be used with success.

Chrysanthemums for the Home

There are varieties of Chrysanthemums, says the United States Department of Agriculture, for almost all outdoor gardens, no matter where they may be, except in the extreme northern states and in the arid regions or hot wind-swept sections of the great plains. In the northern half of the states north of the Ohio River and central New York only the most enduring varieties of Chrysanthemums are hardy, but the Summer is long enough to permit bloom on the earliest flowering sorts, which must be wintered in frost proof frames or cellars. In all the interior states which are subject to hot drying winds during the Summer special care must be taken in locating the bed to prevent the ruin of foliage. In the southern states, however, the Chrysanthemum finds locations best suited to it and rewards the grower with a lavish display of bloom which might well be envied farther north.

When grown at its best, the Chrysanthemum is essentially a plant for the careful and painstaking gardener. Many will survive the vicissitudes of the amateur's hardy garden, but the results are far from the best. "Chrysanthemums for the Home," is the title of a new bulletin just issued by the United States Department of Agriculture, as Farmers' Bulletin 1311, which describes the cultural methods that represent the better practice for the amateur. The bulletin treats in a simple manner the preparation of the soil, summer pruning or stopping, fertilizing, staking, disbudding, shelters, propagation, varieties, and types of bloom.

The home gardener in general will find the small flowered or pompom varieties more suited to his purpose and easier of culture than the large commercial type. The beginner may secure his start by ordering from a nursery such varieties as he desires, in which case they are commonly small pot grown plants which have been raised from cuttings. Or he may secure shoots from a neighbor gardener in the Spring after the natural growth has started.—*California Cultivator*

Whether the new department, "Our Poultry and Pets," which we are starting on the opposite page this month, will be continued or not, depends on how it is received by my readers. Mr. Sheward has a lot of experience in work of this kind, and his artistic delineation of his subjects make them especially interesting, easily understood, and helpful.

Readers of THE FLOWER GROWER write me from time to time that they are much interested in birds and pets, and naturally and necessarily poultry is not only interesting from a study standpoint, but is interesting financially to those who have made a sufficient study of it to understand its details and practical applications.

While some of the things printed in THE FLOWER GROWER are not at all strictly floral in scope and treatment, yet they qualify as *balanced activities* for which this publication stands.

MADISON COOPER

The Iris

Irises for Wet Ground and Dry Ground

In a recent number of THE FLOWER GROWER a reader asks for twelve Irises for swamp culture and twelve for dry ground. I believe the reader was from Georgia. Allow me to present this list:

FOR WET GROUND

1. Iris versicolor comes in violet, light blue, pink-lavender and white.
2. Iris hexagona (Southern form), blue.
3. Iris foliosa, blue.
4. Iris pseudacorus, yellow.
5. Iris pseudacorus gigantea, a very tall growing yellow. Not hardy below about 10° F.
6. Iris caroliniana, blue.
7. Iris lævigata, purple.
8. Iris lævigata, alba white.
9. Iris fulva, brick red.
10. Iris Missouriensis, lavender, blue, or white.
11. Iris sibirica, blue, violet, lavender or white.
12. Iris spuria, blue, violet, white or yellow.

Not all these names are given in catalogues. Under Iris sibirica, select *Snow Queen, George Wallace* and *Distinction* in cheap sorts; and *True Blue, Perry's Blue, Emperor, Skylark, Sunny Brook, Red Emperor* or *Butterfly* for high priced ones. In spurias these are all good: Iris aurea, yellow, *Ochroleuca,* ivory white. *Mrs. A. W. Tait,* lavender, *Lord Wolseley,* fine blue. All these are cheap. Do not plant Spurias, Sibiricas or Missouriensis where water will stand over them any length of time; they like moist, but not wet conditions. Versicolor, folioas, hexgona, pseudacorus fulva and lævigata will grow in boggy ground, indeed pseudacorus and versicolor will flourish in a few inches of water.

FOR DRY GROUND, BEARDED IRISES

Very good cheap sorts are as follows:

White; *The Bride, Florentina, Mrs. H. Darwin, Innocenza.*

Yellow; *Prairie Gem, Flavescens, Aurea,* (Germanica).

Blue and White; *Bridesmaid, Madam Chereau, Fairy.*

Blue or violet; *Cengialti, Princess Beatrice, Monsignor, Trojana.*

Purple; *Purple Queen, Caprice.*

Bronze and variegated; *Dr. Bernice, Jacquesiana, Prosper Laugier, Iris King, Eldorado.*

Pinks; *Mrs. Alan Grey, Queen of May, Isolene.*

This list runs far over the dozen but as there is as much as two months difference in the time of blooming of earliest and latest there are almost no duplicates of color blooming at once. The early sorts are first. All of these can be bought of *some* nurseryman as low as twenty-five cents and some as low as ten cents.

RALPH W. SHREVE

English Irises

AFTER a long interregnum I have this year again renewed my personal acquaintance with the English Iris, not that the garden has ever been wholly without any, for I have been carefully "growing on" a lovely deep rosy mauve seedling of my own; and for a short time I had a deep purple and a rich blue—both likewise home-raised—but these last two, alas! were victims of the war. They were all three *selfs.* Last Autumn the time seemed to have come when I might get a small collection for trial. I am always very keen on collection-growing. The pleasure of anticipation is still as green and virile within my breast as ever it was and coupled with this there is the mild but very real excitement of seeing if anything good will turn up among the unknown or the forgotten. I am always ready to be told of "good things," but as "stolen waters are sweet and bread eaten in secret is pleasant," so finding out for oneself which are the best among the flowers that have lent themselves to variation is sweet too. Therefore, I am a confirmed grower of collections. Comparisons here, as Shakespeare says, are odorous, *not* as lesser men would have it, odious. They are the sweet smelling savour which seems to satisfy the natural bias of human nature to pick and choose.

Sometimes we get jars. The result of the trial is far from what we expected. The truth must be told that the English Irises were a most disappointing lot. There was not a single self-coloured variety among the twenty-five and, worse still, for the first time my choice mauve seedling had six broken or blotched blooms. I cannot honestly say that I cared very much for any one of the whole collection. Even the whites were tinged or striped with colour, and were poor things compared with the pure *Mt. Blanc* of other days. Every one was blotched or marked in some way. Have all English Irises become jazzers? Have they all discarded those beautiful self colours that I remember so well? Tell us, someone with greater experience than mine, if this is so. Tell us if there are any of those delightful selfs left. Is my experience this year only what one must nowadays invariably expect? Is "Tekel, tekel," written large on the wall? Does it mean that there have been no raisers of seedling English Irises among the last generation? I have an idea that sooner or later all varieties undergo this distressing change. But the pity of it!

Some varieties, of course, are more presentable than others, and if we keep them at a respectable distance are not so bad. I remember an old squire telling me what a shock he got when he first saw the face of the wife of one of his tenants. She had a beautiful figure and well cut clothes, and her back view was charming; but, poor woman, she was very plain when you saw the front view. It is much the same with the Irises now in flower. They are all right from the windows, but they *are* "plain" when you get a near view. It is a difficult matter to select the best. It would be going too far to call it a choice of evils, but it is getting on in that direction. They cannot help their looks; moreover, it is quite likely that it is man who does not fully understand their necessities who is in fault. Let me, then, conclude by giving the names of five of the most satisfactory. *Snowflake* (good white with faint rose markings in the standards), *Prince Albert* (mauve with purple blotches), *Othello* (rich dark blue with very dark markings), *Socrates* (tall dark purple with almost black markings), *Starlight* (late; purple standards with blue falls with a white centre). It was *very* noticeable the difference that the rain made in all the English Irises. I thought I had never seen such a miserable-looking lot of flowers as I saw at the R. H. S. Hall on June 27 and again at the Rose Show two days later. I felt prepared to eat my hat if I had not a good deal better at home, but when I went into the garden on my return and saw the long bed I found to my horror that mine were just the same pitiable curled-up looking objects; obviously the dry spell with the hot sun and high winds had been too much for them. The change one long day's rain made was almost incredible.

JOSEPH JACOB, (In *The Garden,* English)

Irises

I know a little garden where the lovely Iris grows,
And Lilies nod their heads in quiet places;
Hesperis holds her dainty robes with all the grace she knows;
And purple Pansies lift their velvet faces.

White Columbines are swinging like doves on slender stalks
In places where the fragrant Elders rule;
But Irises! sweet Irises! are guarding all the walks,
And singing in the shadows by the pool!

INEZ DEAN BROWNELL

"Discovers" The Flower Grower

The president of one of our State Horticultural Societies, having just "discovered" THE FLOWER GROWER, writes me of his own volition as follows:

> "Quite by accident while lying in a hospital here I stumbled on a copy of THE FLOWER GROWER and began reading with the weary thought that it would be as useless as many other such publications. I made the pleasant discovery to the contrary and to my delight found the first really useful garden magazine and hasten to become a regular reader and enclose herewith the price of subscription."

If people keep on telling me that THE FLOWER GROWER is good, perhaps after a while I will begin to believe it myself; but, as a matter of plain fact, what THE FLOWER GROWER is now, as compared with the ideal in the Editor's mind, makes a rather poor showing. Those who read THE FLOWER GROWER from month to month need not form the impression that the Editor has any misapprehension of the true status of THE FLOWER GROWER. Its weaknesses are probably more apparent to him than its merits.

Are Cattle Superior to Men?

BY E. CARMICHAEL, M. D.

THE Syracuse preacher who drew a lesson from the fine stock exhibit at the New York State Fair excited the above question in the mind of Editor Cooper whose editorial led the writer to a thought or two on the subject.

When analyzing a race of organic creations for the purpose of comparison with another race, it becomes immediately evident that we should not skim the mere surface of the subject biologically, but should dig deep into its essentials. We should constantly bear in mind the whole of environment and heredity as causes of variation in the characters of individuals of the species and races and the purposes as well as the results of variation.

The preacher in question is said to have made a comparison between a highly domesticated and highly "improved" race. That is, one having been caused to vary in its characters according to man's desires and by man's selection, compared with a perfectly free race, one in a natural state,—one having been caused to vary by natural selection; possibly an unfair comparison since the causes of variation are so entirely different, the one being definitely controlled, the other being subject alone to natural laws.

IT IS common knowledge that animals and plants under domestication may be made to vary more rapidly and more definitely under man's selection of certain characteristics to be propagated, than in a state of nature and under natural selection. Man selects only the individuals for breeding that display the characters suited to his desires in the so-called development of a breed, whether his desires be for beauty or utility. He likewise creates the environment best suited to his domesticated individual, which also implies that the individual is not required to put forth extra effort on his part in his struggle for existence. What the domesticated animal has gained in beauty or utility for man has been of no benefit to him or his race. In fact, is it not true that our so-called "improvements" in our domesticated races of plants and animals are only improvements that benefit man, and that, biologically, the variations caused by man's selection has caused the various races to deteriorate? Can we not see races of domesticated creations all about us that being divested of the environment supplied by man would soon become extinct?

The first law of organic Nature is that the *race* shall be preserved. It has been erroneously stated that self-preservation is the first law, but every evidence from the book of Nature is to the effect that the good of the individual is subject to the good of the race. When we "improve" a race are we sure we are not violating Nature's first law by lessening the ability of the race to independently survive in the struggle for existence? This, however, is not to be condemned since, in the natural struggle for existence, the fittest survive.

THE human race, the natural race to which the domesticated races were compared, is subject to the law of natural selection. It has no guiding power over its destiny that selects certain desired characters and breeds individuals for the propagation of these characters, to prevent breeding between individuals not possessing these characters. Its environment is not determined and supplied expressly for it, as was the environment of the domesticated animal at the State Fair. This fact alone renders a competent comparison of the two races unsatisfactory if not impossible; the basis for consideration is so dissimilar. But let us suppose that a system for human environment and intercrossing of male and female individuals could be devised that would fulfill the fondest dreams of the Eugenists. We know from our experience with domesticated animals and plants that certain desired characters could be definitely modified, even improved, from our present standpoint; but what Eugenist is wise enough, that, looking into future centuries with their constantly changing conditions due to human nature, he could construct a scheme of breeding and environment that will create a race of men whose excess of happiness will so overshadow their sorrows that they will call his name Blessed? Who is wise enough to avoid deteriorating elements in his scheme, knowing that at all times the law of compensation is inexorable? Would it seem wise to undertake so complex a scheme when the application of a simple principle will ultimately accomplish more definite results?

IT may be true that we have many prize-winning cattle and but few prize-winning people; but put those prize-winning cattle out into a state of nature in competition with a herd of the species that has undergone natural selection throughout centuries and who doubts that their prize-winning qualities would serve them but poorly in their struggle for existence. Have we then "improved" the race or only modified it in accordance with man's wishes.

The human race was evolved through the laws of natural selection and its chief pursuit is for happiness. If it were possible to breed and condition human individuals definitely for this abstract element, happiness, in the largest meaning of the term, there is no doubt that the future would see a super-happy race. But any scheme of race "improvement" that does not have this element of variation for its definite object is sadly inadequate and doomed to failure, since the happy individual is the most vigorous and best equipped to survive in the struggle for existence between individuals of the species.

Happiness comes from achievement. There is no joy so deep and great as the joy of the job well done. The master worker in all lines of human activity realizes a deeper joy in his achievement than do the masses who receive the benefits of his work. His is a spiritual joy, a joy of the man within, while theirs is a material joy, one of the senses. The principle is simple. It is the accretions that often encumber a principle that make it appear complex.

The problem for the reformer, then,— he who is ostensibly devoted to bringing happiness to humanity,— is to achieve a definite end rather than criticise the ends attempted and achieved by others, to teach by precept as well as words a doctrine that does not curtail individual liberty; since curtailment of liberty is the very antithesis to happiness; to inculcate principles that tend to divest man of the barnacles of materiality that centuries of greed, ritual and convention have decreed necessary for happiness. Let us first divest ourselves of the bonds welded by unspiritual things and teach by word and precept the true doctrine of the Man of Nazareth, the doctrine of the Kingdom of Happiness, the doctrine that requires a cleansing from without and within. When the simple principle of this doctrine is set forth with sufficient consistency and appeal the world will begin to see more prize-winning humans as well as prize-winning cattle,— humans who have achieved success since they have attained true happiness.

Garbage for Manure

A number of readers ask if they can use family garbage as fertilizer for a small garden. They seem to think this will be all they need in the way of plant food. It would be more economical to feed the garbage to a pig or a small flock of hens—thus utilizing the feeding value. The garbage alone will sour and is not worth much as a fertilizer. The best plan will be to compost it, mixing it with soil, dead leaves, sods or any waste. Turn the pile over now and then and mix lime with it. Far better results will be obtained if acid phosphate or ground bone can be mixed with this compost. If it can be well decayed and the acid phosphate added, it will make fair manure. If house slops can be poured over it, so much the better.—*Rural New Yorker*

Waste vegetation can be rotted down with sods, etc., and make the best kind of fertilizer.

Lilacs

(From Bulletin of the Arnold Arboretum)

THE word Lilac as most persons understand it means the plant with purple or with white flowers of old-fashioned gardens, and this Lilac, the Syringa vulgaris of botanists, and its numerous varieties are the most popular shrubs which can be grown in northern gardens, and the flowers of no other plant bring so many visitors to the Arboretum. This Lilac reached western Europe at the end of the sixteenth century by way of Constantinople and Vienna; and until a few years ago Persia was believed to be its native country, now, however, it is known to be a native of the mountain valleys of Bulgaria. It is not known when this plant first reached America, for there is no authentic record of it in this country before 1785 when Washington planted it at Mt. Vernon. It probably came much earlier for the colonists often brought favorite plants with them from their English homes. The wild form of Syringa vulgaris was raised from seeds sent to the Arboretum from Bulgaria in 1896. The flowers are purple and resemble those of the purple Lilac of old gardens but the flower-clusters are narrower with less crowded flowers. There is no record of the date of the first appearance of the white-flowered form which was first described in 1623. In the Arboretum can be seen good examples of the Lilacs of old New England gardens on the eastern slope and near the summit of Bussey Hill where two long rows of them were planted more than a century ago on each side of one of Benjamin Bussey's garden walks.

The improvement of the garden Lilac dates only from 1843 when a nurseryman at Liege in Belgium raised a plant with small double flowers. Nothing is now known of the origin of this plant but as it was called Syringa vulgaris *azurea plena* it was probably a seedling of the common Lilac and not a hybrid. By fertilizing the flowers of Syringa vulgaris *azurea plena* with the pollen of varieties of the common Lilac, Lemoine produced the first important double-flowered Lilac, *S. Lemoinei* and others, and by again crossing these with forms of the common Lilac the double-flowered Lilacs of recent years have been made. By the crossing of varieties and by careful selection the flowers of the common Lilac have been gradually changed in size and in color in the last thirty years, but unfortunately the flowers of many modern Lilacs have lost a good deal of the fragrance of the old-fashoned Lilac, which, once enjoyed, is never forgotten. There are too many varieties of the common Lilac now cultivated. Some of them with different names given to seedlings in different nurseries and often in different countries are identical, and others are so much alike that they can only be distinguished by close comparison. It is important to cultivate them all in the Arboretum for study and comparison, but in a private garden everything that is best in the forms of Syringa vulgaris can be found in not over a dozen of the single-flowered and a dozen of the double-flowered forms. The Arboretum does not undertake to name the twenty-four best varieties. The selection must be left to the person who is going to plant them for no two persons agree about Lilac flowers. There are already between one hundred and sixty and one hundred and seventy named varieties of this Lilac in the Arboretum collection. The flowers are fast opening, and the best way for persons living in the neighborhood of Boston to make their selection is to study the Arboretum collection, and make notes on the color and size of the flowers and the size and shape of the flower-clusters.

In planting Lilacs it must be remembered that plants on their own roots are superior to those which have been grafted on other varieties of the common Lilac, for Lilacs produce many root-suckers. These often grow vigorously, so that a person who buys a fine named variety may in a few years find that the suckers from the root on which it was grafted have overpowered and killed his named variety, or that he has a bush producing on different branches flowers of his original purchase and of the stock. Nurserymen also use the Privet as a stock on which to graft Lilacs. This is a better stock than the Lilac for if it produces suckers they are easily recognized and can be removed, and if the grafted plants are set deep Lilac roots are soon produced. Privet stock is strongly advocated by many good growers of Lilacs but others still believe that the best plants are raised from cuttings which can be made in Winter from hard wood, but best from the soft wood taken in late June or early July. No one should ever buy a Lilac plant grafted on the root of another Lilac. Lilacs on their own roots give best results.

THE PERSIAN LILAC, the Syringa persica of botanists, was known in England as early as 1658. This is a beautiful, hardy plant with slender, drooping, wide-spreading branches, narrower leaves than those of the common Lilac, and small fragrant, lavender colored flowers in short compact clusters. There is a variety with white flowers and another with laciniately lobed leaves. For many years it was universally believed that because Linnaeus had named it Syringa persica this plant was a native of Persia or of some country adjacent to Persia. Meyer, collecting in China for the Department of Agriculture of the United States, found in 1915 quantities of a Lilac covering hillsides in Kansu. Plants raised from seeds of this Lilac have flowered and proved identical with the lobed leaf form of Syringa persica and as the plants have grown stronger they produce branches with the entire leaves of the type of the species. Since 1915 the Arboretum has also received dried specimens of this Lilac collected in Kansu. As a specimen of a wild plant from Persia is not to be found in the large European herbaria, there is every reason to believe that the Persian Lilac is a Chinese plant, brought from China to western Asia and Europe just as the Peach and other Chinese plants found their way westward.

Fifty years ago the species of Syringa known in this country were Syringa vulgaris, S. persica, the Hungarian S. Josikaea, the Himalayan S. Emodii, and the Chinese S. oblata and S. amurensis, and two hybrids. Now there are twenty-seven species growing here with a few varieties and nearly all the known hybrids. In addition to these are a few species or perhaps forms which have been described by botanists but not yet introduced into cultivation. Of the twenty-seven species now in this country, twenty-two have been introduced by the Arboretum. Among these Arboretum introductions there are several beautiful and important garden plants. Among them for many persons the best is

SYRINGA PUBESCENS. This is a tall shrub with erect stems, small leaves and broad clusters of small, pale mauve flowers with a long slender corolla-tube. For their fragrance which is more pungent and delightful than that of the flower of any other Lilac, Syringa pubescens should find a place in every northern garden. Plants in the United States have failed to produce seeds and as this species has proved unusually difficult to increase by cuttings, it has remained one of the rarest Lilacs in American gardens. It can, of course, be increased by grafting and sooner or later fertile seeds will be found on some of the large plants growing in the Arboretum. Syringa pubescens has been growing in the Arboretum since 1883 where it was raised from seeds sent here by Dr. Bretschneider from Peking.

SYRINGA VILLOSA is another first rate garden plant for which the United States is also indebted to Dr. Bretschneider. It is a large, round-topped bush from ten to twelve feet tall and wide, with large, broad, elliptic to oblong leaves, bright green and dull on the upper surface and pale below, a broad or narrow cluster of flesh colored or nearly white flowers which have the rather disagreeable odor of those of the Privet. In spite of this drawback S. villosa is a good garden plant; the habit is excellent; it flowers freely every year and the flowers do not open until those of most other Lilacs have faded.

SYRINGA SWEGINZOWII is a native of northwestern China and came to the Arboretum by the way of St. Petersburg. It is a narrow shrub with slender erect branches, narrow leaves and long narrow clusters of slightly fragrant flowers, flesh-colored in the bud and becoming white after opening, with long slender corolla tube. The relationship of this Lilac which flowers profusely every year, is with S. pubescens but it is a smaller plant blooming ten or twelve days later and the flowers are much less fragrant. As it grows in the Arboretum, S. Sweginzowii is one of the handsomest of the Lilacs of recent introduction.

SYRINGA JULIANAE, one of Wilson's discoveries in western China, is another plant which deserves a permanent place in American gardens. It is also of the same group as S. pubescens with the same shaped flowers with the long corolla tube, but they are arranged in a short broad cluster and are much less fragrant. Their beauty is increased by the contrast between the violet-purple of the outer surface of the corolla and the white inner surface of its lobes.

SYRINGA TOMENTELLA, or as it has sometimes been called S. Wilsonii, another of Wilson's Chinese discoveries, is a tall fast growing, hardy shrub with slender arching stems forming an open broad head. The leaves resemble those of S. villosa and the flowers which are produced in large open clusters are of the palest rose-color with a long slender corolla-tube.

SYRINGA MICROPHYLLA, although by no means one of the handsomest of the new Lilacs, is interesting because it blooms every year in October as well as in June. It is a native of north-central China and is a narrow shrub with slender erect stems and small leaves and small pale rose-colored flowers in small narrow clusters.

SYRINGA REFLEXA which resembles S. villosa in habit and foliage differs

from all other Lilacs in its narrow, cylindric, pendent clusters of dark rose-colored flowers. It is a native of western China where it was discovered by Wilson. It is a hardy, vigorous fast growing shrub which promises to grow here to a large size. As a garden plant it is chiefly valuable for the unusual shape of its drooping flower-clusters.

It is too soon to speak of the value of the recently introduced Korean species, S. velutina, S. dilitata and S. formosissima, which are perfectly hardy in the Arboretum and have already flowered sparingly in the Arboretum.

Lilac appeared in the Botanic Garden at Rouen in 1810, and was the result of the crossing of Syringa vulgaris and S. persica. It is one of the most valuable of Lilacs. It grows quickly into a bush ten or twelve feet high and broad of rather open habit, and is very hardy and blooms freely every year. In shape the leaves resemble those of the Persian Lilac but are broader. The flowers, too, resemble those of the Persian Lilac, but are longer and produced in massive clusters sometimes two feet in length and so heavy that the slender branches can barely support them. The flowers are reddish purple and there are forms with darker red flowers and with nearly white flowers. This Lilac has often been called Syringa rothomagensis, but unfortunately through a misunderstanding of its origin the oldest and correct name for it is Syringa chinensis.

A HYBRID LILAC. The first hybrid

Lilacs

By PROF. F. W. BRODRICK
Manitoba Agricultural College

IN AN address given at a luncheon held by the Manitoba Horticultural and Forestry Association in the Lecture Room of the Board of Trade Building, Travers Sweatman referred to the Lilac as a shrub very suitable for planting in Manitoba gardens. He commented on its hardiness and pointed out that it was suitable for use both in shrubbery and hedge planting. Judging from the magnificent show of bloom that was to be seen on the Lilac bushes in, and around, the city this Spring, the correctness of this statement was amply verified.

Considering its hardiness and the general attractiveness of its bloom and foliage, the Lilac is a shrub that should be extensively planted.

It might be interesting to many to know that although the common purple and white forms are best known, there are a number of distinct species of Lilac and numerous interesting hybrid forms. Bailey, in his classified list, mentions eleven distinct species. Of these, possibly only four are of interest to Western growers, namely: Syringa vulgaris, S. Villosa, S. Josekaea and S. Persica. A number of interesting hybrid forms of S. Villosa and S. Josekaea have been produced by a French gardener and issued under the name of Syringa Henryi.

The S. Villosa is a vigorous, strong-growing shrub that has given splendid results wherever planted in Western Canada. Many of improved forms of Lilac have been tried at Indian Head, and in Winnipeg, and have been found to give good results. Among the better-named varieties, the following are mentioned as being particularly good: *Charles X* (Rosy Lilac), *Philemon*, and *Congo* (dark red-purple), *Glorie de Moulins* (double white), *Marie Legraye* (single white), *Madame Lemaine* and *Miss Ellen Wilmott* (pink), *Justi* (blue). In a collection of Lilacs, the Persian Lilac should also be included. It is not a large shrub, but is of a spreading habit and bears large clusters of delicately tinted flowers.

Lilacs require an open position and fairly good soil to give the best results, and should be planted in the Spring of the year. They require a certain amount of thinning each year, but should not be overpruned; care should be taken not to cut off the wood that is likely to produce bloom.

By making a collection of the better named varieties and by giving the bushes reasonable care during the growing season, a wealth of bloom of delicate tints of color can be produced over a fairly long period.

By NORMAN M. ROSS
Chief of Tree Planting Division, Forestry Branch, Indian Head

PROBABLY there is no class of hardy shrubs which is so well adapted to general Western planting as the Lilacs. The common Lilacs, both mauve and white, are grown, of course, by nearly everybody. The Josekaea Lilac and the Villosa Lilac are types which, although found quite commonly, are not so generally grown. They are of advantage in that they come into bloom after the common Lilacs are over, and the foliage is possibly more striking than that of the ordinary Lilacs. The Persian Lilac is also another of the more common varieties. The flower trusses are much more graceful than those of the common Lilac. The bushes also start to bloom as a rule when very small. With us, in certain seasons, the Persian Lilac kills back somewhat, although, as a general rule, not so severely as to destroy all the blossoms.

Of the common named sorts *Charles X* is by far the best and can usually be secured from all the commercial nurseries. This has a very large strong truss of bloom and the shrubs bloom when very small.

Our named varieties we secured from a nursery in France, planted in 1911. We obtained seventeen different kinds. These have all done quite well with us, and the blossoms range in color from white to the deepest crimson-purple. A few of them are single, but the majority have large double flowers, and the trusses are exceptionally showy. These named varieties are an enormous improvement over the common purple and white Lilacs, and as most of them appear to be hardy, they certainly deserve more attention than apparently has been given to them in the past.—*Western Gardener and Beekeeper*

Recreation in the National Forests

THE first important fact about recreation in the national forests is its inevitability. It is there. It could not be kept out. It is just as natural and necessary as water running down hill.

Take a map of the United States, or of Canada, or both, with the national forests all plainly marked. See how they cover the high ranges of the Rocky Mountains, the Wasatch, the Sierras, the Coast range, indeed most of the mountains of America. Quite obviously they include much of the highest, wildest and most remote territory within the national boundaries. By the same terms they must include the best hunting and fishing, much of the best mountain climbing, the best opportunities for camping and the most tempting country for adventure. Just to look thus at the map would make any healthy outdoor man or woman wild to pack up his old duffle bag and start for the national forests.

All these forms of outdoor recreation existed long prior to the national forests. First the aborigines hunted and fished there, then the white men came, and the white women, too; and so for centuries before there were any national forests, in a congressional sense, forest recreation flourished. In fact it is one of the inbred characteristics of the true American (or Canadian) to love the free outdoor life. This quality is an inheritance from generations of pioneers. It is a quality which lies deep in American character and will not readily accept denial.

It is pertinent to call up even older precedents. The fact is worth recalling that in ancient Britain, whence came our older ancestors, national forests existed. And in old France and in the yet older Roman state, national forests were ordained. Of course they were called royal hunting forests, meaning plainly that they were established and maintained for purposes of recreation.

With all this history in our bones, how could we keep out of the forests? Or why should anyone now, in these latter days, be surprised that forest recreation assumes large proportions? Yet there are still persons who think of such recreation as something quite incidental and hardly worth noticing. Certainly, they say, this is nothing which ought to be provided for in the constitution of national forests or in the plans of management!

However, it is a very easy theorem to demonstrate that the recreation now annually harvested from the national forests is worth millions of dollars. In proving such a proposition we need not appeal to any sentimental values of the noble mountains and whispering Pine trees. We have only to compare forest recreation with commercial recreation, millions of dollars worth of which is bought and sold every day in the open market. To play pool, to attend the movies, to go to the opera,—these all cost money. Everybody knows the prices current on these forms of recreation. Take these same prices and apply them to forest recreation (which is surely just as good) and it becomes instantly clear that we are dealing with values which mount into the millions, and that these values are tested by the same standards which we use when we buy recreation for ourselves on Broadway or Main Street.

It now appears that this national zeal for outdoor enjoyments, instead of diminishing as we get farther away from pioneer life, constantly grows. The number of persons seeking recreation in the forests is manifestly and rapidly increasing. The general coming of the touring automobile has had a great influence. The wide advertisement of the national parks has done much; for in general the parks are surrounded by forests, and when the tourist gets started he can't avoid the forests if he wants to.

FRANK A. WAUGH, (In *National Municipal Review*)

The Peony

Peonies for June Splendor

BY ENID IVEY, (Central New York)

IF YOU would know the full joy of June at its best, plant Peonies. From the earliest single to the last double are many weeks of the most gorgeous splendor early Summer can bring to the North. While Peonies begin to bloom in May, they are at their greatest beauty through June.

Those who have Peonies will tell you that the collecting of the most beautiful of these wonderful flowers, and the arranging of them in the garden is one of the most fascinating of hobbies. Those who have none, cannot imagine the pleasure in store for them.

There are kinds for every spot and for every taste. They are lovely in a garden by themselves; and lovely sprinkled through the perennial border; or massed along a path or driveway; or following the shrubbery's irregular line, widening into bays and promontories here and there. There is every shade of white, pink, and red, and every degree and form of single and double to suit the most vagrant fancy.

PEONIES are such a comfort to the amateur garden lover. They are best left for *years* in a place; and well planted continue to increase in size and beauty for at least eight or ten years. After that they may be left indefinitely by a little added nourishment and the removal of some of the shoots in early Spring. When one remembers that once planted the Peony is "all set," for years to come, a little extra care in providing them with nourishment seems reasonable.

Then they are inexpensive. No other flower will have cost so little at the end of a few seasons. The first cost need not be high as some of the most beautiful varieties cost as little as a dollar a root.

Each year new varieties are being originated. Some of these are the world's most beautiful Peonies, while others are not as good as those we already have. As these new varieties are increased only by lifting and dividing the root every second or third year, they will be scarce for many years, and, of course, expensive. Unless one has seen one of these new varieties and knows it to be all that is said of it, it is more wise to buy of the older standard sorts. The ratings of the American Peony Society are one of the best aids in selecting varieties. Still, tastes vary so much, the only real guide is to see the Peonies and choose your favorites for yourself. Be sure to choose those rated above 7.0 by the American Peony Society. It does not give a Peony a low rating without good reason. Some of these Peonies with low ratings are perfect some seasons and a failure under other conditions. Where there are so many good varieties to choose from, it is a pity to add one of these disappointing kinds to your garden.

THE Peony is not only a garden flower;—it is one of the most beautiful cut flowers we have. Of course, such a large flower needs a long stem and a large dish to hold it. A great Rose bowl or fish bowl will allow a wonderful arrangement of varieties not so strong of stem; while those with very stiff stems look well standing in a large frog in a shallow appearing dish that will hold several inches of water.

When put into water, the two sets of leaves next the flower are all that should be left on the stem. The other leaves may be put into the dish to make plenty of green. If all the leaves are left they tend to absorb the moisture and cause the flower to wilt.

Peonies keep better if picked during the cool of the day, and morning is the better time. A flower cut with bud hardly open will be more beautiful in the house than one that has already opened in the garden.

Inside or outside, Peonies can add a fairyland of beauty to the home in June.

Success with Peonies*

BY DAVID C. STRANGER

PEONIES have form and color that artists dream of but cannot transmit to canvas. Peonies have the grace and beauty that sculptors try to get and fail. To my mind the Peony is the peer of all flowers because of the many remarkable uses to which it can be put. We call June the month brides choose because the Roses are then in bloom. But there is a gradual shifting from the Rose to the Peony, which is just as adaptable for decoration and much lovelier.

There are very few of us here, I suppose, who do not remember the pink and red "pineys" our grandmothers had in their gardens. They were handsome but they had their faults. As a small boy I had a neighbor who possessed a Peony plant as high as this table, a plant that bore from fifty to a hundred blooms. We boys got together one night and climbed the high picket fence to get some of the flowers. I remember the occasion because I had on a pair of brand new overalls and the overalls got caught in a picket and I wondered how I should explain the tear to my mother. We took a knife and cut off two blooms each and hurried back over the fence. Then we sniffed of the blossoms and threw them away we were so disgusted with the odor.

There are something over one thousand named varieties of the Peony, according to the American Peony Society. Of this number perhaps one-half have real merit. Some are more perfect in form than others; some have a lovelier color, but they are all far superior to the old-fashioned Peonies.

MAKING NEW VARIETIES

You have been willing to aid in cultivating the Peony and in using your money to produce better kinds. The work of the hybridizers, like Lemoine and Dessert, are familiar to you. You know the wonderful creations they have produced. Can you look into any flower more beautiful in form and more delicate in color than these modern varieties? There are some you cannot describe. You feel they have the beauties of all flowers blended in one. Peonies like that are not the result of chance; they are the result of many careful hours of patient effort in securing the seed that produced the plant that grew the flower. Perhaps, after these seeds were planted, at least ten years passed before a bloom of such quality was produced.

Thomas C. Thurlow, of West Newbury, perhaps was known to many of you; at least you have known about him. Twenty years ago he told his boys he would give them some pocket money if they would collect Peony seeds. Now pennies do not grow on trees, and they are not often found in the pockets of a small boy. Therefore the Thurlow boys went to work vigorously. They must have collected four or five bushels of seed. The seeds were planted and in four or five years the blossoms began to appear. About two hundred thousand plants were grown. Mr. Thurlow was a remarkable man with Peonies. He had the vision that very few men have to look into the future and see what marvelous creations might be brought forth. Yet in the course of time the Peonies were forgotten because so many other pressing duties came. A few years ago, however, his sons began to look the field over. They cleared the land and decided that, of all the Peonies growing there, fifty to seventy-five had merit. The others were bloomed another year, and in the end about two hundred varieties were reserved. It is only by close selection like this that improved varieties can be given the world. The man who simply names a lot of seedlings is not helping anybody. It is true that in a sense like will produce like but you cannot make a silk purse out of a sow's ear and you cannot take an old Peony, propagate from seed and stand much chance of getting good new kinds.

HYBRIDIZING METHODS

People tell me that they have selected a Peony and have taken the pollen from some other Peony and cut away the stamens and planted the seeds from that Peony. That they have called hybridizing. Now I believe that in that process man does one per cent of the work, and nature the other ninety-nine. In other

*From a lecture delivered before the American Peony Society, at Boston, Mass., June 17 and 18, 1922.

words, the wind, the bees and the other insects introduce much more outside pollen than does the so-called hybridizer. Sometimes we find men who follow a different plan. I know one such man, a man for whom I have the greatest respect. The business world would call him slow. Certainly he does not count time as we count it. He doesn't look at the clock. He forgets all about dinner and doesn't know the day is done until darkness falls, when he is engaged in trying to put into the Peony something which will make it more beautiful than any flower seen before. This man uses transparent envelopes, which he places with the greatest care over each flower that he has fertilized by hand. He watched the flower through the envelope's face. When he takes off the envelope he holds up a sheet of paper in the direction from which the wind is blowing so as to catch any wandering pollen floating in the breeze. That man knows what he is doing, and the blood which goes into his crosses. Some people say that his life has been wasted. We who love Peonies do not believe it. His is the true secret by which Peony perfection is approached.

A few years ago a man had a strong desire to get together one of the nicest collections of Peonies that could be had. Having money in abundance he visited every Peony grower in this country, and sent to France and sent to England to get every Peony of any merit. He gathered together a wonderful collection. In a few years he produced some of the most exquisite blossoms. Then the man tired of the Peony. He wrote a number of commercial growers, asking them what they would offer for his collection. It was my privilege to be with the firm that bought them. We got them for a mere song, not one twentieth of what he had paid for them.

RESTORING POOR PLANTS

You would have said that was a good buy. It was in a way. Yet they were full of disease. The foreign Peonies are grown too crowded. The ground becomes fouled. The growers are too limited for room. As fast as one variety is taken out another is put in. That makes for trouble. We had on our hands a lot of Peony plants too poor to divide for making salable divisions. Now, however, most of them have been restored.

We are on the right road to eliminate that dread disease Nematodes. Many of you have bought plants in that condition. It is the result of growing Peonies on polluted land. The remedy is to remove the plants to fresh ground and use plenty of lime. We believe that Peonies need lime in abundance. When we plant roots we dust them all over with lime as they go into the ground. We use bone meal and wood ashes as a fertilizer, and we are careful to have the eyes not more than two inches under the surface. We practice mulching with salt hay because it is cheap and doesn't introduce weed seed. I recommend a mulch of some kind, if it is only grass clippings, for at least three years.

I have on the table a Peony root such as you would get from any reliable Peony grower for a plant one year old. You will note that it is a fair sized root. If the variety were very scarce you would get a plant about half the size. I am very much against dividing Peonies too small. It takes years to get blooms from a root with only one small eye. I should like to ask if it isn't possible that cutting Peony roots so close for commercial purposes is the reason why certain stocks deteriorate so rapidly. I once went to see a grower who had bought some *Cherry Hill* from us. If we had got three divisions in the length of time he had had the plants, we would have been satisfied. He had made fifteen divisions. As the result he had little weak plants that wouldn't bloom for years. I remember that when we first got *Mary Woodbury Shaylor* we were disappointed in the blooms, and I think it is violating no confidence to say that Mr. Shaylor in his eagerness to let people enjoy this Peony had divided too closely. The blooms were not to be compared with those on older and more robust plants.

STERILE PEONIES

In our nursery a few years ago we had perhaps five hundred plants of a certain variety, with only about fifty blooming. We visited another grower and found the same condition. The plants were sterile. We put them on the brush heap and so did he. You cannot afford to buy or sell from such stock.

WILT DISEASE

Then we have the wilt disease, so-called. I admit that I do not know much about it although we occasionally find plants with wilted leaves. I believe that the trouble is usually due to some injury which is done the plant below the ground when it is small by the man who cultivates around it. Fungus gets into the wound and the plant suffers. I understand that there is another trouble called the wilt disease, but this is the only kind we have seen and it does not worry us. It can be avoided, I think, in all cases by using ground that is not sour and well drained. In fact, that is the remedy for most troubles that Peonies have. If your plants are in bad shape, move them to ground where the drainage is good and use plenty of lime and wood ashes unless you are sure the land is sweet. Just about as much lime and wood ashes as you can hold in your two hands is enough for each plant. We had one season when the plants in a certain section were so bad that we steered everybody away from that locality. Now this trouble has all been done away with.

If you wish to plant out Peonies this Fall, visit if possible the place where the plants which you are to buy are grown. Go to people who have Peony gardens, ask them about the varieties which thrive best and where they got their stock. Then you will be able to buy intelligently. Fight shy of a man who wants to sell you small divisions. At the risk of repeating what I have said before, I want to emphasize again the danger of buying plants that have been divided too hard. Not only are they a long time in blooming, but they are likely to remain weak and to give poor stock from which to propagate.

PLANTING METHODS

Let me say a word about the result of planting too deep. When that is done a new lot of roots is made above the original root growth and the stalks from these roots are invariably shy bloomers. Sometimes a plant will throw up stalks from the original roots and from the new roots. Then you will have a Peony blooming well on one side and poorly or not at all on the other. If propagation is done from plants grown in this way, you are likely to get non-blooming stock. I believe that you can produce Peonies that have blooming qualities and Peonies that are practically sterile by the way you handle the stock. Some people spoil their Peonies by too much kindness. They overfeed them with manure, making them soft and subject to disease. You will have no such trouble if you stick to lime, wood ashes and bone meal. It is needless to say, perhaps, that Peonies like an open, sunny place where they do not have to compete with the roots of trees.

Some people who do not use manure in Summer think it is a good plan to mulch their Peonies in the Fall after frost comes. The danger in this plan is that maggots will be introduced, as they breed in manure.

In the Spring just as soon as the weather begins to get warm, get out with the Peonies and cultivate them, because there is nothing which does so much good as stirring the earth, admitting the chemical elements in the air.

Although the drainage must be good, Peonies like plenty of water. You must be careful, though, not to get the water on the half open buds or it will give a brown tinge on the edges.

The time to pick the Peony buds is when they are one-half open. Then they have better color than if they open outside. They will have particularly fine bloom if they can be allowed to unfold in a damp place, perhaps in the cellar.

Peonies are often improved by using a support which keeps the buds up out of the dirt when storms come. The best support we have found consists of three metal rods three feet long, bent into a ring at the top. A piece of barrel wire with a hook at each end is run through these rings and fastened together around the Peonies. This support is light and inconspicuous, yet strong.

High Grade Peonies of Moderate Cost

In this list no attention has been paid to personal favorites, but is based on the American Peony Society's rating, and a price not to exceed two dollars for good three to five eye standard divisions. Varieties in each color bloom approximately as listed. Only one variety rates less than 8.5 that being *Felix Crousse*, (8.4) which was added to extend the blooming period of the reds; it being, in normal seasons, about a week later than *Karl Rosenfield*. *Marie Lemoine* and *Grandiflora* are very late. *Albatre* and *Avalanche* are considered synonymous.

WHITE

Festiva Maxima 9.3, *Madame Emile Lemoine* 8.9 *Baroness Schroeder* 9.0, *Avalanche* 8.7, *Marie Lemoine* 8.5.

LIGHT PINK

Eugenie Verdier 8.6, (not Eugene) *Octavie Demay*, 8.5, *Madame Auguste Dessert* 8.6, *Germaine Bigot* 8.5, *Albert Crousse* 8.6, *Reine Hortense* 8.7, *Madame Emile Galle* 8.5, *La Perle* 8.5, *Richardson's Grandiflora* 8.8.

DARK PINK

Mons. Jules Eli 9.2, *Claire Dubois* 8.7.

RED

Adolphe Rosseau 8.5, *Karl Rosenfield* 8.8, *Felix Crousse* 8.4.

"HOOSIER"

Wound Dressing for Trees

By W. J. YOUNG

Ohio Experiment Station, (In *Forest Leaves*)

IN SPITE of the advice of horticulturists that pruning wounds and injuries to trees be covered with some kind of pain or antiseptic dressing to protect the wood from the weather and prevent decay until healing can take place, the use of such preparations has never attained the favor with practical men that their importance deserves. The use of wound dressings may have a double purpose—to prevent the loss of sap and to keep out disease spores. In many kinds of trees the presence of open wounds result in much sap leakage or bleeding. If bleeding is excessive considerable injury to the tree may result. The presence of sap upon the exposed surface of the wood is a most favorable condition for the germination of the spores of wood-destroying fungi which cause decay and heart rot. To protect the wound and prevent decay is usually the more important purpose of wound dressings.

The fungi, which attack wood are mainly of the mushroom family or its relatives, especially the spore-bearing kinds. The fungi are propagated by very small spores which correspond to the seeds of higher plants but are of much simpler structure. They are produced in almost unbelievable numbers. If a fresh mushroom is placed gills down and left for several hours in a place where the air is quiet, the spores will fall down and collect along the line of the gills in such a way as to make a perfect spore print. The spores are often noticeably piled along the lines to such an extent that it is apparent that if they were spread evenly, the entire surface of the print would be covered, with perhaps more than one layer. These spores are so small that, even in species with the largest spores, it would require two thousand placed side by side to measure an inch. At this rate four million would be required to cover one square inch with a single layer. Since a mushroom six inches in diameter, covers a space of about twenty-eight square inches, it is evident that it may produce a single generation more numerous than the entire population of the United States.

Fungi of this type are able to infect plants only through open wounds. The spores are so small and light that they float freely in the air like very fine dust, and being so numerous are almost sure to reach any injury which leaves the wood exposed, where, if conditions are favorable, germination takes place and decay follows.

A wound dressing may accomplish its purpose either by so covering the surface that spores cannot come in contact with the wood or by supplying poisonous substances which kill the germinating spores. That the substances commonly used as dressings fail more or less in their purpose, is probably an important reason why they are not more widely used. Most of them form but an imperfect cover or are but temporarily effective. Paints and similar insoluble substances do not penetrate into or even stick well to the moist surface of freshly cut wood. Soluble substances, on the other hand, are soon washed away by rain or even by the flow of sap from the wound.

Since the Spring of 1919, experiments have been under way to develop a wound dressing which will be effective and free from the disadvantages of those previously used. A substance has now been discovered which seems to meet the requirements. All the experiments with this new dressing have been highly successful and it is now desirable that it be given a thorough, practical trial. The material used is a solution of sodium silicate, commonly known as water glass. It is the substance largely used for preserving eggs. The commercial solution is a sirupy liquid which becomes quite thick in cold weather so that it is more convenient and economical to use when diluted slightly. A solution containing three parts of the commercial water glass and one part of water has given practically as good results in the experiments as the full strength solution, and is the strength recommended. It is easily applied with a paint brush and appears to be entirely harmless to the tree.

Owing to its solubility, the water glass readily unites with the sap of the tree and is thus able to penetrate slightly into the pores of the fresh surface of the wood. Upon exposure to the air, through drying, oxidizing, and possibly chemical reaction with some substances in the sap, it soon hardens, apparently forming silica, the principal constituent of glass and also of quartz rock, which forms an insoluble cover over the surface to which it is applied, preventing both the escape of sap and the entrance of harmful organisms.

Though fresh water glass appears to have some slight antiseptic properties, it is probable that they are lost when the substance hardens. Its effectiveness is, therefore, due to the mechanical protection afforded by sealing the surface of the cut. Experiments are now in progress to determine whether the water glass can be combined with a disinfectant in such a way that the wound dressing may also become an active fungicide.

Much of the success of the dressing depends upon the conditions of the surface to which it is applied. Trees which bleed badly should be pruned, if possible, when the sap is not flowing. Bleeding from large wounds is more difficult to stop than from small ones and may require more than one treatment. In the case of pruning wounds, the cut should be made parallel to the surface from which the branch is removed. In order that a callus may form at the edge of the cut and quickly cover it, the cut should be made very close. Stubs of a half inch or more in length are likely to heal poorly. The bark on the stub is apt to die back and a callus forms lower down. It is then necessary for the trunk to increase in thickness before it can grow over the stub. In the meantime a ring of untreated dead wood is exposed which may allow the rot to penetrate below the dressing. This may happen if only one edge of the cut is elevated.

In treating rough splintered wounds which have resulted from mechanical injury, the surface should be trimmed smooth before applying the dressing. If the trouble is of long standing and decay has already begun, the rotten bark and wood should first be removed, cutting back to sound wood. If a cavity is formed, the interior may be disinfected and filled in the ordinary way. In that case it is probably necessary to apply the water glass only to the sap wood around the edge of the opening.

Spare the Wild Flowers

Withhold the devastating torch,
That fires the forest bowers,
And sears with blighting, black'ning scorch,
The tender, op'ning flowers.
Guard well the fragrant blossoms rare,
Of every rainbow hue, the ferny
Fronds and grasses fair,
That bend with morning's dew.

Disturb not springtime's songsters sweet,
Or woodbird's cozy nest;
The wee Wren's sylvan, safe retreat,
Let nothing cruel molest.
Preserve God's glorious gardens green,
Unharmed by vandal hand;
Mar not a peaceful rural scene,
In all the sunny land.

O! Ye who gayly wend your way,
Through forest, field and glen;
Who spend the blythesome Summer's day,
Far from the haunts of men,
Heart-cherished and in love protect,
Kind Nature's varied charms,
Save them from thoughtless man's neglect,
And ev'rything that harms.

Lest when ye come this way again,
To view these places fair,
Ye find green groves and bush and fen,
All birdless, bleak and bare.
That little children following you,
May through life's leisure hours,
Share lavish Nature's treasures, too:
Please! Tourist, Spare the Flowers!

A. S. ALEXANDER, (In *Wisconsin Conservationist*)

Pansies and Violets in Winter

Today, December 3, long rows of Pansies in my garden are bright with bloom. We took a bowlful to a party Saturday night, but today there are hundreds of velvety blossoms turned to the dim December sun. It is very easy here in Central Illinois to have Pansies blooming in the open ground ten months in the year, from August-sown seed. They are hardy at all but zero temperatures, and survive the Winter under a little mulch. Removing this March 1, usually reveals a few flowers, but at any rate, they are flowering famously in a few days. By April their part of the garden is fairly carpeted with their soft rich colors.

My Violets are the sweet-scented English or Russian kind. They increase by runners very much like Strawberries, and also require a mulch through the hardest part of the Winter. They begin flowering almost as soon as the snow is gone. But, unlike Pansies, they quit as soon as the weather gets really warm, taking up the strain again for six weeks or so in the late Fall. Our wild Violets have no fragrance, but this garden variety distils the most delicious perfume in the whole floral kingdom.

My Pansies and Violets have many visitors. But few people can resist their charm. Children love them dearly. I wish I had nothing to do for a few years but to grow them and give them to flower-hungry children (and their mothers), taking my pay in witnessing their delight.—JESSIE W. NEWELL, Ill., (In *Rural New Yorker*)

The Gladiolus

Gladiolus Field Notes

Rating Values from Various Standpoints as Obtained by a New Percentage Scale

BY CHAS. E. F. GERSDORFF, Laurel, Md.

THE new scale used for the rating of Gladioli has been devised by the author with the assistance of one of his partners, T. F. Pappe, mainly because the scale in use by the American Gladiolus Society does not cover all points of value, nor does it consider the Gladiolus of value except from a commercial standpoint. The latter scale when used by several judges has resulted in differences of opinion up to 25%, by the different judges, according to J. A. Kemp. Some Glads may have purely an exhibition or commercial value, or other value besides these two and may have values several ways.

The new rating scale with explanations of its use has been submitted to the American Gladiolus Society for consideration and adoption. I have but recently learned that it has been given into the hands of a Committee whose Chairman is F. H. Stevens, and a new official scale is to be built on it as a basis, with a possibility that it will be followed rather closely.

AMERICAN GLADIOLUS SOCIETY SCALE

Spike:—	
Length	5
Straightness	5
Number of Blooms	10
Facing of Blooms	5
Flower:—	
Size	10
Expansion	5
Substance and Texture	5
Form	5
Color:—	
Attractiveness	10
Either self or strikingly marked	10
Foliage	5
Vigor of Growth	5
Durability as cut flower	5
Adaptability to florists' use	5
Productiveness	5
Disease resistance	5
	100

THE NEW SCALE

Flower:—	
Color	20
Size	15
Form	5
Substance cut (5 for each or 10 for either)	5
Substance on plant (5 for each or 10 for either)	5
Spike:—	
Length	5
Grace	5
Florescence:—	
Number blooms	5
Number blooms open	5
Placement	5
Foliage	5
Vigor	5
Disease resistance	5
Productiveness	5
Unusual quality	5
	100

If exceptional merit is shown under any of above points, credit should be given here; also for earliness, lateness, number of spikes, branching, increase by division, bloom from cormels, bloom from young corms, and pliability of stem.

In rating Gladioli, it is necessary at times to consider them from four different standpoints, and the various values allowed are considered differently.

From an exhibition standpoint, individual attractiveness of color is essential; cut for any fault that would detract from this. For commercial, miniature commercial, and landscape values attractiveness in mass is essential and for the latter, effectiveness of color at a distance. The miniature commercial type is distinctly miniature in every way and flowers of this type should prove of value for bud vases and corsage bouquets, and of course as *fillers* in various florists setpieces.

Size is of prime importance for exhibition purposes; almost as much for the other types except miniature, for which cuts are made if the size tends too large for the spike; the perfect miniature receiving the maximum count. When size is five inches—the maximum is given for large type Glads; if *Primulinus Hybrid* the maximum is given for three inches. If greater size is noted extra value is given under unusual quality.

Form is of almost equal importance, a trifle less from a commercial or landscape viewpoint. A low count for exhibition need not be low for the other two. Expansion is considered an integral part of form.

My ideal for form is rather elastic. I do not care for tubular blooms having no spread. Wide spreading Amaryllis or Lily form and sometimes the others if they are well opened, receive the maximum. Slight or greater hoodedness of upper petal results in cuts. I do not fancy the hooded type of Primulinus, particularly from an exhibition standpoint. One can have all the airiness of the original Primulinus even when the "hood" is entirely eliminated.

Substance cut, is of importance for all types except landscape, and "on the plant" for the latter. Lasting ten days plus texture of petals is considered worthy of maximum.

Spike—The shorter the spike the lower the count, except under landscape value when if short spikes are uniform for the variety full count may be given. Miniature type would also receive full count for short spike. Otherwise, maximum is given for a length of four feet. Over this height extra, under unusual quality.

Grace—Form, size in relation to stem, number of blooms in relation to length of spike and placement, together with straightness are all considered. A slight curvature may add to grace of spike. Stiffness of spike may detract from its grace.

Number of blooms—These should be sufficient for length of spike. If too crowded or too far apart cut for number of blooms.

Number open—Full count for five or more. If more extra value for exhibition under unusual quality.

Placement—A decided cut if opposite or facing upward. The latter may be novel but hardly attractive. Facing one way and most any distance apart—the full count for all but exhibition. Facing one way or all around the spike, and but fairly compact so that flowers do not overlap, the full count for exhibition.

Foliage, if plentiful, full count for all. For exhibition, foliage is not as important as for other values.

Vigor—Full count for upstanding spikes that need no assistance. Even a slender spike may receive the full count for vigor. Vigor of foliage is also considered here, and productiveness.

Disease resistance—This refers to foliage, spike and corms.

Productiveness—An increase of one hundred or more—full count; if more, additional value under unusual quality. This applies to all values except exhibition for which an increase of fifty or more is considered sufficient for full count.

Varieties reported by the author in "Garden Notes on Gladioli," which was published serially in THE FLOWER GROWER starting with May 1921, were re-rated by the new scale. These new ratings conclusively showed that the old X method lacked accuracy and left too much to fancy. In most cases the ratings were too high and of course did not show the differences of value in respective grades. All these varieties are being presented in these articles, together with the new ones tried out during the season of 1923.

Ratings of 90-100 are considered extra fine; 80-90 fine; 70-80 good; 60-70 fair and anything below 60 not worthy of consideration. Personally 70 will be my lower limit and then only for varieties that have unusual color, for which there is no counterpart in a higher grade.

RATINGS OF VARIETIES TESTED

Abalone (Metzner). Color (Ridgeway) Cameo Pink, blended Amaranth Pink, Cream-White midribs; bases lower petals Empire Yellow dusted Tyrian Pink; pistil Amaranth Pink, anthers Lavender Violet. Outside shaded Amaranth Purple. Form—wide orchid. Soil—sandy loam. Season—wet. Planted—June 18. Days to blooming—79.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	13	13
Form	5	5
Substance cut	8	8
Spike:		
Length	5	5
Grace	5	5
Florescence:		
Number blooms	5	5
" " open	4	5
Placement	5	5
Foliage	5	5
Vigor	5	5
Disease resistance	5	5
Productiveness	4	3
Unusual quality:		
Color, number of spikes		5
Color, branching	4	
Totals	93	94
Ratings	93	94

Acme (Metzner). Color (Ridgeway) Outer petals Hermosa Pink flashed with Rose Doree. Inner petals Eosine Pink flashed Rose Doree; bases cream color encircled with a stippling of Rose color and blotched Carmine. Pistil La France Pink, anthers edged Violet Blue. Form—wide triangular. Soil—sandy loam. Season—wet. Planted—June 18. Days to blooming—73.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	16	14
Size	11	11
Form	5	5
Substance cut	8	8
Spike:		
Length	4	4
Grace	5	5
Florescence:		
Number blooms	4	4
" " open	4	4
Placement	5	5
Foliage	5	5
Vigor	5	5
Disease resistance	5	5
Productiveness	3.5	2.5
Unusual quality	0	0
Totals	80.5	77.5
Ratings	81	78

Adeline Kent (Diener). Flesh pink, striped and splashed light rosy salmon, faint star of rose in throat, lower petals feathered on bases with carmine; pistil pale pink; anthers pink edged violet. Form—wide Lily. Soil—clay loam. Season—average. Planted—May 18. Days to blooming—104.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	18	20
Size	12	12.5
Form	5	5
Substance cut	10	10
Spike:		
Length	3.5	4
Grace	4	5
Florescence:		
Number blooms	3	3
" " open	3	4
Placement	4	5
Foliage	4	4
Vigor	4	4
Disease resistance	5	5
Productiveness	3	3
Unusual quality:		
Form	3	
Totals	81.5	84.5
Ratings	82	85

Adelaide de Luxembourg (————). Soft pink with cream throat. Form—wide open. Soil—clay loam. Season—wet. Planted—May 3. Days to blooming—89.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	12	12.5
Form	5	5
Substance cut	8.5	9
Spike:		
Length	3.5	4
Grace	5	5
Florescence:		
Number blooms	4	4
" " open	4	5
Placement	5	5
Foliage	4	4
Vigor	4	4
Disease resistance	5	5
Productiveness	3.5	3
Unusual quality:		
Color	4	5
Totals	87.5	90.5
Ratings	88	91

Adelina (Kelway)*. Deep rose, shading light to deep, edged narrowly with carmine; pale primrose midribs and blotch. Form—wide triangular. Soil—clay loam. Season—wet. —Planted—May 3. Days to blooming—95.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	14	15
Form	4	5
Substance cut	7	7
Spike:		
Length	4	5
Grace	4	5
Florescence:		
Number blooms	5	5
" " open	5	5
Placement	4	5
Foliage	5	5
Vigor	5	5
Disease resistance	5	5
Productiveness	3	2
Unusual quality:		
Number open	4	
Vigor		2
Totals	89	91
Ratings	89	91

Adelina Patti (Keur)†. Dark violet-blue. Form—wide open. Soil—clay loam. Season—very dry. Planted—May 30. Days to blooming—90.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	14	14
Form	5	5
Substance cut	8.5	8.5
Spike:		
Length	3.5	4
Grace	4	4.5
Florescence:		
Number blooms	4	4.5
" " open	5	5
Placement	4	5
Foliage	4	4
Vigor	4	4
Disease resistance	5	5
Productiveness	3.5	2
Unusual quality:		
Color	3	3
Totals	87.5	88.5
Ratings	88	89

Admiral Cervera (Vaughan)†. Dull slaty rose, striped and edged violet, blotched creamy white. Form—wide open. Soil—clay loam. Season—wet. Planted—May 27. Days to blooming—85.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	10	5
Size	8.5	9
Form	5	5
Substance cut	7	7
Spike:		
Length	3.5	3.5
Grace	4	4.5
Florescence:		
Number blooms	3	3.5
" " open	4	4.5
Placement	3	4
Foliage	3	3
Vigor	4	4
Disease resistance	5	5
Productiveness	2	2
Unusual quality	0	0
Totals	62	60
Ratings	62	60

Adora (Meader). Color (Ridgeway) Geranium Pink blended darker, lower petals blotched velvety Garnet Brown edged Scarlet. Pistil White, anthers Pale Lavender. Form—wide triangular. Soil—sandy loam. Season—wet. Planted—June 16. Days to blooming—69.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	12	12
Form	4.5	4.5
Substance cut	7	7
Spike:		
Length	4.5	5
Grace	5	5
Florescence:		
Number blooms	5	5
" " open	3	3
Placement	4.5	5
Foliage	4	3
Vigor	4	4
Disease resistance	4	4
Productiveness	4	3
Unusual quality:		
Number of blooms, color and branching	5	
Color and earliness		4
Totals	86.5	84.5
Ratings	87	85

Adoration (Kunderd). Rich orange-scarlet, to lighter throat, bases white blotched and stippled scarlet. Form—wide open square, ruffled. Soil—clay loam. Season—wet. Planted—May 23. Days to blooming—92.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	12	12.5
Form	5	5
Substance cut	10	10
Spike:		
Length	3	3.5
Grace	4	5
Florescence:		
Number blooms	5	5
" " open	3	4
Placement	4	5
Foliage	4	4
Vigor	5	5
Disease resistance	5	5
Productiveness	3	2
Unusual quality:		
Substance	2	2
Totals	85	88
Ratings	85	88

Adrian (Metzner). Color (Ridgeway) Rose Pink blending outward to edges and tips of Tyrian Rose, bases and midribs White; lowers blotched Rose Red; pistil Amaranth Pink; anthers Violet Blue. Color lightens a little after cutting. Form—wide amaryllis. Soil—sandy loam. Season—wet. Planted—June 18. Days to blooming—70.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	18
Size	12	12
Form	5	5
Substance cut	8	8
Spike:		
Length	3.5	3.5
Grace	5	5
Florescence:		
Number blooms	3.5	3.5
" " open	3	4
Placement	4	5
Foliage	5	4
Vigor	4	4
Disease resistance	4.5	4.5
Productiveness	4	3
Unusual quality:		
Color	3	
Earliness		1
Totals	84.5	80.5
Ratings	85	81

Afterglow (Cowee). Salmon flesh, overlaid rich salmon with edges pale salmon flesh; midribs of lower petals white, and blotched rosy magenta; throat stippled and striped magenta on white. Form—wide triangular. Soil—clay loam. Season—wet. Planted—May 15. Days to blooming—84 (small corm) and 78.

RATING	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	18	16
Size	12.5	13
Form	5	5
Substance cut	10	10
Spike:		
Length	3.5	4
Grace	3	3
Florescence:		
Number blooms	3	3
" " open	2	2
Placement	3.5	3.5
Foliage	4	4
Vigor	4	4
Disease resistance	5	5
Productiveness	3	2
Unusual Quality:		
Substance	2	2
Totals	78.5	76.5
Ratings	79	77

Afterglow (Christy). White with a greenish tinge, upper petals shaded rosy carmine, lowers

bearing deep blood red blotches bordered pale sulfur-yellow. Form—wide Lily, tips reflexing. Soil—clay loam. Season—average. Planted—May 5. Days to blooming—79.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Size	12	
Form	4	
Substance cut	7	
Spike:		
Length	4	
Grace	5	
Florescence:		
Number blooms	4	
" " open	4	
Placement	5	
Foliage	5	
Vigor	5	
Disease resistance	5	
Productiveness	5	
Unusual quality:		
Form	2	
Total	85	
Rating	85	

Afterglow (C. Zeestraten). Color (Ridgeway) Rose Doree blending to bases of Peach Red, lower petals Peach Red edged Rose Doree and blotched Scarlet-red over Scarlet. Pistil Cream White; anthers Lavender Violet, Form—triangular, slightly hooded. Soil—gravelly loam. Season—wet. Planted—June 18. Days to blooming—68.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	10	10
Form	3	5
Substance cut	6	6
Spike:		
Length	3.5	4
Grace	5	5
Florescence:		
Number blooms	4.5	5
" " open	3	4
Placement	4.5	5
Foliage	5	5
Vigor	5	5
Disease resistance	5	5
Productiveness	2	2
Unusual quality:		
Vigor, foliage	5	
" " earliness		5
Totals	81.5	86
Ratings	82	86

Agricola (Goodrich). Color (Ridgeway) Rosolane Pink, flashed with Deep Rose Color, feather and stippling of Tyrian Rose on lower petal bases. Pistil Rose Pink, anthers Violet Blue. Form—wide Amaryllis. Soil—gravelly loam. Season—wet. Planted—June 17. Days to blooming—68.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	19	16
Size	11	11
Form	5	5
Substance cut	9.5	9.5
Spike:		
Length	3	3
Grace	3	3
Florescence:		
Number blooms	4	4
" " open	3	4
Placement	4	3
Foliage	3	4
Vigor	3	3
Disease resistance	5	5
Productiveness	4	3
Unusual quality:		
Number of spikes, earliness		3
Form	2	
Totals	78.5	76.5
Ratings	79	77

Alaska (Childs)*. Pale blush white, throat lemon yellow penciled with scarlet-vermilion. Similar to *Eucharis* and *Jack Frost*. Form—wide open, tips slightly reflexed. Soil—clay loam. Season—dry. Planted—May 5. Days to blooming—115.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	17	17
Size	8	8
Form	5	5
Substance cut	5	5
Spike:		
Length	2.5	2
Grace	5	5
Florescence:		
Number blooms	5	5
" " open	5	5
Placement	5	5
Foliage	5	5
Vigor	4	4
Disease resistance	5	5
Productiveness	2	2
Unusual quality:		
Number blooms open	1	
Totals	73.5	72
Ratings	74	72

Albert 1st. (Vilmorin)†. Blush white blending to flesh pink edges, slightly flecked pale rose; lower petals blending to pale sulfur midribs and bases; throat marked with a star of rose-pink; anthers deep lavender-blue; pistil white. Form—wide open bell. Soil—clay loam. Season—average. Planted—May 19. Days to blooming—84.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	13	13
Form	4	4
Substance cut	10	10
Spike:		
Length	5	5
Grace	5	3
Florescence:		
Number blooms	4	4
" " open	5	5
Placement	5	5
Foliage	5	5
Vigor	5	5
Disease resistance	5	5
Productiveness	3	2
Unusual quality:		
Substance, number open, color	3	
Substance, color		2
Totals	92	88
Ratings	92	88

Albert Lea (Black). Color (Ridgeway). Light Scarlet-red; bases lower petals White; pistil Pinkish White; anthers Violet Blue. Form—wide Amaryllis. Soil—sandy loam. Season—wet. Planted—June 16. Days to blooming—67.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	12	12
Form	5	5
Substance cut	7	7
Spike:		
Length	4.5	5
Grace	5	5
Florescence:		
Number blooms	4.5	4.5
" " open	4.5	5
Placement	5	5
Foliage	4	4
Vigor	5	5
Disease resistance	5	5
Productiveness	4	4
Unusual quality:		
Color	2	
Color, earliness, bloom young corms		5
Totals	87.5	91.5
Ratings	88	92

Albion (Metzner). Color (Ridgeway). Scarlet overlaid with Scarlet-red, blending to edges of Rose-red; bases of lower petals Scarlet blotched with Garnet Brown; pistil Rose Red; anthers Negrosin Violet. Form—wide triangular. Soil—sandy loam. Season—wet. Planted—June 18. Days to blooming—61.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	17	18
Size	9	9
Form	5	5
Substance cut	6	6
Spike:		
Length	3	3.5
Grace	5	4
Florescence:		
Number blooms	3	3
" " open	3	3.5
Placement	3	4
Foliage	4	3
Vigor	4	4
Disease resistance	5	5
Productiveness	2.5	2
Unusual quality:		
Earliness; bloom from small corms		5
Totals	69.5	75
Ratings	70	75

Alice (————). Lilac with violet shadings, blotched violet-red. Form—wide open. Soil—clay loam. Season—very dry. Planted—May 17. Days to blooming—96.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	16	
Size	9	
Form	5	
Substance cut	6	
Spike:		
Length	2.5	
Grace	3	
Florescence:		
Number blooms	3	
" " open	3	
Placement	3	
Foliage	4	
Vigor	2	
Disease resistance	4	
Productiveness	2	
Unusual quality	0	
Total	62.5	
Rating	63	

Alice Carey (Teas). Probable synonym *Snowcrest* (Livingston Seed Co.). White with pink lines on bases of lower petals. Form—well opened. Soil—clay loam. Season—average. Planted—May 1. Days to blooming—83.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	19	20
Size	8	8
Form	3.5	3.5
Substance cut	6	6
Spike:		
Length	3	3
Grace	5	4
Florescence:		
Number blooms	4.5	4.5
" " open	3	4
Placement	5	3
Foliage	4	4
Vigor	5	5
Disease resistance	4	4
Productiveness	5	5
Unusual quality:		
Branching, bloom facing around spike	2	
Totals	77	74
Ratings	77	74

Alice Chamberlain (Kunderd)*. Wine-purple shading to a white throat, edges of petals white. Form—wide triangular. Soil—clay loam. Season—average. Planted—May 2. Days to blooming—118.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	20	20
Size	11	11
Form	5	5
Substance cut	6	6
Spike:		
Length	3	3
Grace	3.5	5
Florescence:		
Number blooms	3.5	4.5
" " open	3	4
Placement	3.5	4.5
Foliage	5	5
Vigor	5	5
Disease resistance	5	5
Productiveness	4	3
Unusual quality:		
Number of spikes, lateness		3
Totals	77.5	84.0
Ratings	78	84

Alice Goodrich (Goodrich). Color (Ridgeway) White, sometimes heavily, sometimes lightly, splashed with Rhodamine Purple; bases lower petals Cream White with dusted feather of Mallow Purple; pistil Light Rhodamine Purple, anthers Hyacinth Violet. Form—wide triangular, floppy. Soil—gravelly loam. Season—wet. Planted—June 17. Days to blooming—78.

RATING

	VALUES PER CENT Exhibition	Commercial
Flower:		
Color	19	18
Size	14	14
Form	4.5	4.5
Substance cut	7	7
Spike:		
Length	4	4
Grace	4	5
Florescence:		
Number blooms	3.5	3.5
" " open	3	4
Placement	4	5
Foliage	5	5
Vigor	4	4
Disease resistance	4.5	4.5
Productiveness	3.5	2.5
Unusual quality	0	0
Totals	80.0	81.0
Ratings	80	81

(Continued in June issue)

Gladiolus Nomenclature

LIST OF NAMED GLADIOLI

Compiled by Clark W. Brown, Ashland, Massachusetts

The Gladiolus check lists of which this is a continuation or addition, which were compiled by Mr. Brown, and which ran through sixteen numbers of THE FLOWER GROWER, from August 1921 to November 1922, have now been published in bound or pamphlet form and are available at $1 per copy. They may be had either from Mr. Brown or from the publisher of THE FLOWER GROWER.

Additional lists were published in the June, July, August, November and December 1923 issues of THE FLOWER GROWER.

The lists which follow are a continuation of the lists already published, and it is the purpose of Mr. Brown to continue these lists from time to time, as additions and corrections are sent him. It is urged that those having new varieties for introduction should, before naming, refer the matter to Mr. Brown, to surely know whether the name proposed has already been used or not.

And when a variety is once named it should be promptly reported to Mr. Brown, so that the lists may be brought up to date and kept up to date as new varieties are placed on the market.

This work is of great importance to the Gladiolus trade and it is to the interest of all to keep up the work and make it as complete as possible.

MADISON COOPER, Publisher, Calcium, N.Y.

Name	Originator, introducer or grower first listing it	Date	Main color
Achilles	Bill	1923	Pink (Prim)
Ada	Robinson		Rose
Adelaide de Luxembour	Velthuys	1922	Pink
Adelle	Bill	1923	Pink (Prim)
Airy Fairies	Bill	1923	Cream (Prim)
Alabaster	Pfitzer	1924	White
Aladdin	Davis	1924	Mahogany red
Alice	Robinson	1922	White
Aline	Robinson	1923	White
Alt-Heidelberg	Pfitzer	1919	Yellow (Prim)
Alwin Berger	Pfitzer	1919	Lavender-blue
Andenken an Urach	Pfitzer	1921	Salmon
Anna Kappstein	Pfitzer	1923	Rose
Anna Peters	Pfitzer	1920	Salmon-red
Arbitration	Bill	1923	Salmon-pink
Arbutus	Coleman	1923	Pink
Aristotle	Bill	1923	Jasper red (Prim)
Asteroid	Robinson	1909	Cream
Autumn Glow	Grullemans	1910	Salmon (Prim)
Autumn Tints	Bill	1923	Orange
Balkan Princess	Bill	1923	Red
Bernhard Kuhn	Pfitzer	1919	Salmon (Prim)
Berta Scholhammer	Pfitzer	1922	Rose
Betty Joy	Bill	1923	White
Biene Neubert	Pfitzer	1916	Lilac-rose
Blue King	Robinson	1923	Violet-blue
Blushing Bride	Bill	1923	Pink
Bowdoin	Robinson	1923	Orange-scarlet
Break-o'-day	Bill	1923	Pink
Brilliant	Heemskerk	1921	Brick red
Buddy	Bill	1923	Pink (Prim)
Buenos Aires	Pfitzer	1924	Orange (Prim)
Burlington	Robinson	1923	Pink
Camelot	Robinson	1923	Ruby red
Cameo	Robinson	1923	Shell pink
Camilio Schneider	Pfitzer	1922	Red (Prim)
Camilla	Robinson	1923	Flesh
Captain Jinks	Bill	1923	Pink
Carrara	Krelage	1923	White (Prim)
Cardinal Prince	Kunderd	1924	Cardinal
Cardinia	Robinson	1923	Mauve
Carl Hausmann	Pfitzer	1919	Salmon
Cassiope	Robinson	1923	Red
Chalice Flower	Kunderd	1924	White
Chicadee	Bill	1923	Pink
Christian Mezger	Pfitzer	1916	Canary
Circe	Bijvoet	1923	Light blue
Clara Adams	Vaughan	1924	Pink
Clara Heller	Pfitzer	1923	Lilac-rose
Clara Schopfer	Bijvoet	1923	White
Clare Lutz	Pfitzer	1920	Blue
Clarinda	Robinson	1923	Salmon-pink
Cleopatra	Bill	1923	Yellow
Clio	Bijvoet	1923	Light blue
Copex	Alkemade	1923	Cherry rose
Coral Queen	Hood	1924	Coral red
Delight	Bill	1923	Pink
Desert Sunrise		1924	Yellow (Prim)
Detroit	Vaughan	1924	Pink
Dinah Jonsing	Robinson	1923	Pink
Dixie Maid	Bill	1923	Pink
Dr. E. Lindner	Pfitzer	1916	Red-violet
Dr. Fisher	Robinson	1923	Dark red
Dr. Hans Pfitzner	Pfitzer	1921	Flesh (Prim)
Dr. Isabelle D. Kerr	Fischer	1923	Salmon
Dr. Joh. von Hieber	Pfitzer	1919	Red
Dr. Karl Ochs	Pfitzer	1920	Apricot (Prim)
Dora Mayer	Pfitzer	1916	Flesh
Dorchen Stille	Pfitzer	1922	Yellow (Prim)
E. B. Williamson	Kunderd	1924	Purple
Eden	Grullemans	1924	Salmon (Prim)
Edith Cavell	Jonkheer	1922	White
Edith Landford	Robinson	1923	Puce
Edith Saigge	Pfitzer	1924	Yellow
Elfriede Meissner	Pfitzer	1920	Flesh
Elly Holgersson	Pfitzer	1924	Rose
Elsa Ehmann	Pfitzer	1920	Flesh
Emanuel Geibel	Pfitzer	1916	Red
Emil Peters	Pfitzer	1919	Yellow (Prim)
Erminie	Bill	1923	Purple (Prim)
Ernst Luz	Pfitzer	1916	White
Ernst Zahn	Pfitzer	1919	Yellow (Prim)
Ethel	Robinson	1923	Rose
Ethelyn	Fischer	1923	Orange-yellow
Elvira	Fischer	1923	White
Evangeline	Bill	1923	Pink
Evening	Metzner	1924	Purple
Fantastic	Robinson	1923	Scarlet
Feuer	Pfitzer	1919	Fire red
Feuergarbe	Pfitzer	1924	Red
Feu Superbe	Bijvoet	1923	Red
Fire King	Robinson	1923	Red
Flaming Sword	Krelage	1923	Vermilion (Prim)
Florentina	Bill	1923	Pink
Florient	Bill	1923	Yellow (Prim)
Flying Fox	Robinson	1923	Orange-red
Fontaine	Coleman	1923	Cream
Frances Alexander	Robinson	1913	Cream
Frau Dr. Curtius	Pfitzer	1923	Red
Frau Dr. Elizabeth Lor	Pfitzer	1916	Lilac-rose
Frau Dr. M. R. Hauff	Pfitzer	1916	Red

Pronunciation

"Gladioli," which is the plural form of "Gladiolus," seems to be a never ending cause of stumbling. Even after all the years during which it has been familiar, we are still faced constantly with glaring samples of its misuse. "Gladioli Bulbs," "Gladioli Growers," "Gladioli Gardens," "Gladioli—The King of Flowers:" in every one of these "Gladioli" is incorrect, and "Gladiolus" would be correct.

The test as to whether to use the plural or the singular is very simple: merely substitute some other word, as "Lily," or "Rose," and see which form of it would be correct. Would we say, "Lilies Bulbs," or "Roses Growers," or "Roses Gardens," or "Roses—The Queen of Flowers?" Certainly not. We would say, "Lily Bulbs," "Rose Growers," "Rose Gardens," "The Rose—the Queen of Flowers."

On the other hand, it is correct to say, "Bulbs of Gladioli," "Growers of Gladioli," "Gardens of Gladioli," just as it is correct to say, "Bulbs of Lilies," "Growers of Roses," "Gardens of Roses." It is correct to say, "I have Gladioli to sell," or "I have Gladiolus bulbs to sell," but it is not correct to say, "I have Gladioli bulbs to sell." It is correct to say, "I have many Gladioli in bloom," but it is not correct to say, "I have many Gladioli blossoms." It is correct to say, "I have many Gladiolus blossoms;" also, "Let us have better Gladioli."

When in doubt substitute "Rose" or "Roses" to see which form fits, and you will not likely make a mistake when you substitute the corresponding form of "Gladiolus."

BENJAMIN C. AUTEN

Show Varieties vs. Garden Varieties

BY PROF. J. W. CROW, (Ontario)

I HAVE been interested in the discussion concerning show varieties vs. garden varieties. It seems to me our exhibition authorities might well consider some such grouping in drawing up prize lists so as to bring out definitely the usefulness of varieties. The problems of a Gladiolus enthusiast resolve themselves into two: 1. What variety to grow, 2. How to grow it. Exhibitions are concerned with problem No. 1 and the main purpose of an exhibition is to enable one to arrive at the proper uses of varieties and to establish for each its place or rating in its own category. For my own purposes I make three groups which I call:

(a) EXHIBITION
(b) DECORATIVE
(c) COMMERCIAL

The exhibition variety is likely to possess grandeur and magnificence and is also likely to be high-priced. A decorative Gladiolus is characterized by daintiness and gracefulness in place of the stiffness and formality which have so long been urged against Gladioli by persons of artistic taste. These varieties also may be priced too high for commercial use. A commercial variety is one which is low enough in price to be made use of by the commercial florist.

I would not attempt to say which of the three groups a given variety belongs to but would allow any variety to be shown in any group. I think, however, judges in making awards should keep in mind the distinctive features of each group, which means they will have to pass judgment upon the merits of a given *variety* as well as upon the *quality* of the bloom shown. To take an example, *Mrs. Dr. Norton* has been a frequent winner in the class for best spike in the show which means that it is certainly an exhibition variety. It is almost low enough in price now to be used by the commercial florist for cut bloom and if shown in a commercial class judges would have to decide upon this point. If it is not low enough for commercial use it could not win, but if it is cheap enough I know of no reason why it should be prevented from winning. The same variety is outstanding as a decorative sort, being to a large extent free from the objectionable stiffness of the old varieties. If it can be shown in good enough condition and good enough also in respect to form of flowers and spike I know of no reason why it might not be entitled to win also in the decorative class.

IT MAY be that a classification as above suggested is too advanced for the present. One thing we do need very much however in our exhibitions is a grouping of varieties according to color. This will I believe be admitted by all who have visited any of the A. G. S. shows and who have experienced how difficult it is under our present system even to find the variety you are interested in, to say nothing of comparing a given variety with others of its class and color. My hope is that eventually we shall have a classification into some such grouping as suggested above and that in each class we shall have the full range of color groups.

I use the following color grouping and the prize list I have in mind would be somewhat as shown in the following arrangement.

CLASS A. EXHIBITION

1 spike to constitute an exhibit

1. White
2. Cream
3. Yellow
4. Pink
5. Salmon
6. Orange
7. Scarlet
8. Red
9. Red-purple
10. Blue-purple
11. Blue
12. Mauve
13. Lavender
14. Pink and White
15. Pink and Cream
16. Blotched

CLASS B. DECORATIVE

3 spikes to constitute an exhibit

1. White
2. Cream
3. Yellow
4. Pink
5. Salmon
6. Orange
7. Scarlet
8. Red
9. Red-purple
10. Blue-purple
11. Blue
12. Mauve
13. Lavender
14. Pink and White
15. Pink and Cream
16. Blotched

CLASS C. COMMERCIAL

12 spikes to constitute an exhibit

1. White
2. Cream
3. Yellow
4. Pink
5. Salmon
6. Orange
7. Scarlet
8. Red
9. Red-purple
10. Blue-purple
11. Blue
12. Mauve
13. Lavender
14. Pink and White
15. Pink and Cream
16. Blotched

Petrified Gladiolus Bulb

One of my Canadian readers sends me what purports to be a Gladiolus bulb. If it is a bulb it is a petrified one, as it has no appearance of a bulb at all, except general shape. It is of white material like chalk or salt.

My reader reports that this was from small bulbs planted about two inches apart and when dug the new crop was very nearly touching each other. Bulbs on either side of the petrified bulb were O. K. The petrified bulb when dug looked like a piece of rock salt but after drying out presents much the appearance of chalk, although perhaps not quite as white.

It is stated that the year before, onions were grown on this particular piece of ground and that the following Winter coal ashes were dropped on the spot. In the Spring the most of the coal ashes were cleaned off before planting, and what little were left were dug into the ground.

My reader seems to be quite positive of his statements in connection with this matter, otherwise I should be inclined to question the accuracy of his observations. Surely no such occurrence has been reported in connection with the various freaks and unusual specimens which have been sent to this office. Any suggestion along this line or the report of a similar happening will be thankfully received.

—THE EDITOR

The Gladiolus in 1866

Extract from a book called "Bulbs" published by Houghton, Mifflin & Co., Boston, written by Edward Sprague Rand, Jr., in 1866, under head of The Gladiolus:

MULTIPLICATION OF VARIETIES

This is an evil which will soon be felt. All the world are raising seedling Gladioli. At least one-half of the seedlings are equal to or better than old-named varieties. Each grower names his favorites: and we are in danger of having a confusion of synonyms which will rival the palmiest days of pear-culture. How this can be remedied other than by a Gladiolus convention is an interesting question.

We have said our native seedlings are better than named varieties; we have reason to rejoice it is so, and we see no reason for importing Gladioli when we can raise far better varieties than we can import.

The following are some of the finest varieties:

El Dorado, Solfaterre, Lord Campbell, Vulcain, Pluton, La Quintanie, Rembrandt, Madame de Vatry, Goliath, Junon, Vesta, Sulphureus, Hebe, Penelope, Calypso, Madam Binder, Mlle. Souchet, Mrs. Vilmorin, La Poussin, Count de Morny, Achille Brenchleyensis, Anatole Levanneur, Imperatrice, Ceres, Princess Clothilde, Osiris, Dr. Lindley, Napoleon III., Mars.

Then followed a list of poor varieties, "not worth growing, except for massing."

The author makes this prediction: "These lists might be infinitely increased, and the day is not far distant when a large proportion of imported varieties will be thrown out of cultivation by American seedlings."

W. J. DREW

Toys You Can Make at Home---Gliders

BY T. SHEWARD

THESE interesting toys are made on the same principle as the toy aeroplane, but instead of being driven by rubber band motors, and propellers, they are thrown by hand, with a bent stick, or a slingshot.

They are very easily made, and after you have become proficient at constructing them, you will soon be able to make model aeroplanes. The diagram shows four different designs; two being made of wood, one of sheet metal, and one of feathers.

To construct A, you first make the spine, which is eighteen inches long, and one-quarter of an inch by half inch thick. The little block at the end of the spine, can be nailed on, if the wood is not cut from a larger piece, and a small hole made in it to receive a nail at the end of the throwing stick, as shown at C.

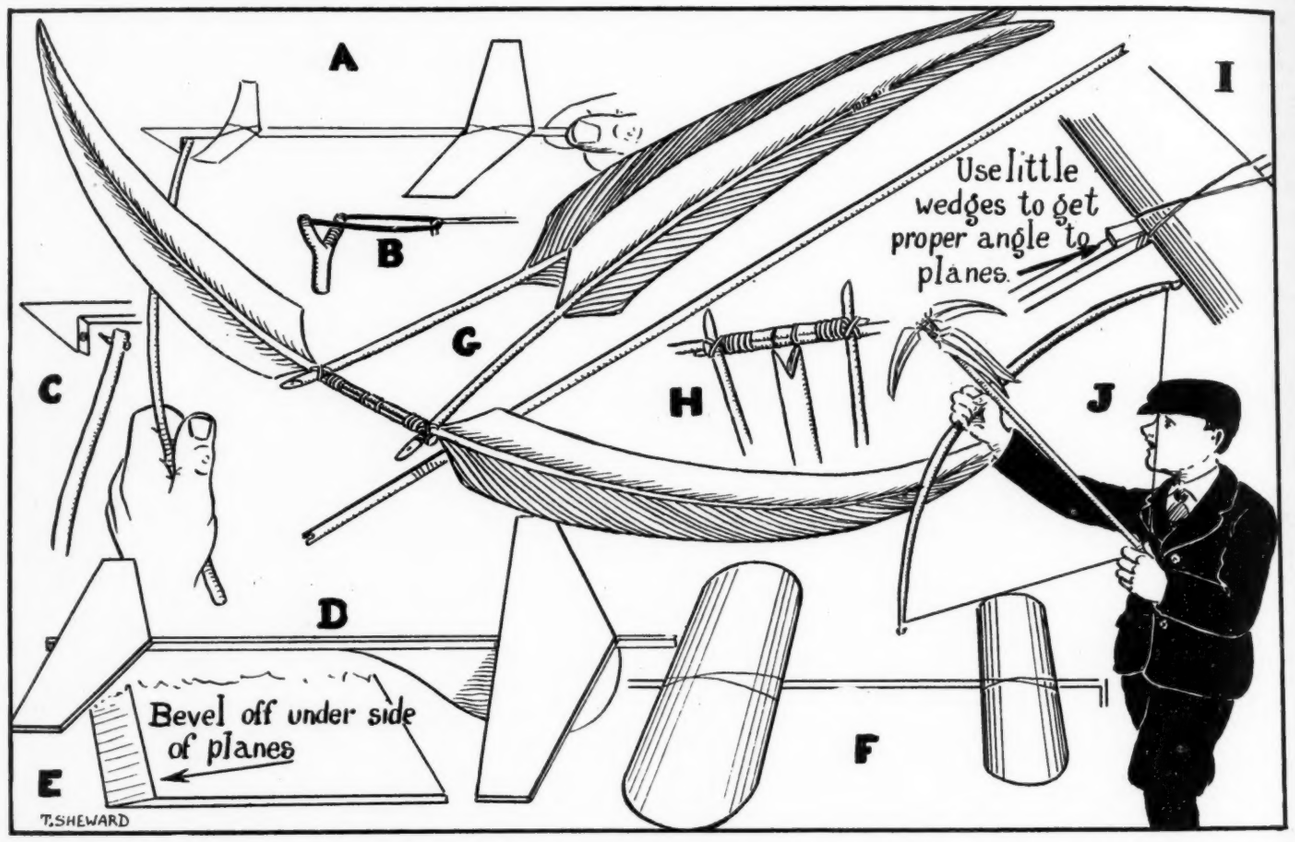
Planes are made from very thin wood, one sixteenth of an inch thick, and are cut as shown at A, or D. The small plane is two inches at the widest part, by six inches, the other four inches, by twelve inches. Bevel off the under sides of the front edges of both planes, E, and then fasten them on with rubber bands, as shown at I, using little wedges to tilt the planes, if required. The rubber bands will allow you to adjust the planes to proper balance, on the spines.

D, is made in same way as A, only it is provided with a keel.

At F, is shown a glider made with sheet metal, which can be bent to any shape, the planes being cut out with a strong pair of scissors, and fastened to a wire spine, with rubber bands. You can throw these models with a bent stick as shown at A, or with a slingshot, as at B, and can make them travel quite a long distance.

The model at G, is made with four feathers fastened as shown, and a nail tied in front to balance it. You discharge this from a bow, as shown at J, the end of the arrow being notched, H, to receive front of the glider. With a good bow this can be sent very high, and it will remain in the air for some time.

For experiments indoors, these gliders can also be made from stiff paper, reinforced with thin strips of wood, and much smaller than those which are here shown.



Actinidia for Arbors

PERHAPS there are many who are well acquainted with the merits of the vine Actinidia, but it was a revelation to me when I first saw it on an arbor last Autumn.

I was passing a lovely home and the kind-faced old lady within the shady nest smiled back at me so "get acquaintedly," I simply had to ask the name of the vine with its funny looking fruit.

"Yes, many people eat the fruit, but we do not," she said, "We are satisfied with its many other valuable properties." And why not? A vine that will make a dense, clean shade, and very quickly; that is entirely free from insect pests, bears edible fruit, and is a rarity.

Yes, why not, and I am going to have it some day. I want an arbor screened with Actinidia and I want to sit in a rocker there and look as sweet (women will be unreasonable sometimes) as did that old lady when she smiled at me—I really want all that.

There was also another vine at one end of the arbor, Schizophragma, but the name was not musical enough to appeal to me though its tresses of white flowers in July and August should appeal to all lovers of fine vines. It is better known as Climbing Hydrangea and originated in Japan, as have so many of our charming vines. It is of rather slow growth but repays one for the waiting. Hardy. I believe the long new names that florists tack to many of our old favorites is the reason we forget them for a time.

MRS. JOHN CLARKSON DARNELL, (Texas)

The Utica Garden Club

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Editorial Notes

WE ARE giving this month a clipping sent by a friend lately moved to California. This friend is quite an authority on all Nature subjects and we know how she would enjoy a sight new to her.

Indeed it must have been a privilege and a remarkably interesting experience to have witnessed such a butterfly migration.

Some plants, notably wild ones, that one would like to enjoy in our gardens are not happy there because the soil is not to their taste. Such plants need an acid soil and acid soil is one of the conditions which gardeners strive to overcome for the good of most garden plants. Rhododendrons, Azaleas and their kind do well only in an acid soil such as they are used to in their wild state.

It was said for many years that it was impossible to make Trailing Arbutus live in a garden, but much studying of conditions disclosed the trouble. Arbutus must have an acid soil. It simply cannot live in ordinary garden soil.

The required soil for these plants can be made by having a compost heap where leaves, grass clippings and other green things are piled together and allowed to decay. Or soil can be brought from the woods. Now another way has been found. Acid soil can be produced by using the following formula as directed: One part tanic acid to five parts of water. Water with this two or three times during the season to keep the soil acid for such plants as need it.

Undoubtedly this watering should be applied to the ground only and not allowed to touch the leaves. Whether or not it would harm them we do not know but think it quite likely.

Naturally plants of this nature should have a bit of the garden to themselves. And what an attractive spot it might be!

We wonder why Robins were so late in returning from the South this Spring. Was their delay noticed in our section only or was it universal in the East? March was drawing rapidly to a close before the first ones arrived and not until April did they return in their usual numbers. It seems strange especially in view of the fact that March weather behaved so well.

Useful Hints for May

MAY! Is there another such crowded month for gardeners, especially amateurs, in all the gardening season? We say, *especially amateurs,* not because their gardens take more time than those of professionals, but because most amateurs take up gardening as a pastime or hobby, and besides the garden have all their regular work to do.

With housekeepers May means housecleaning, spring sewing, etc. While the garden is calling loudly the busy housewife is racking her brains to plan time for answering such calls from a multitude of sources.

The professional in order to make a living must drop all outside interests during the rush month and attend strictly to business.

May! Why May means spraying, spading, raking, sowing, transplanting, potting out. Weeding? Yes, weeding comes in for its share as perennials in the weed family must be pulled up now or they will get such a firm hold that eradicating them will be well nigh impossible.

Annual weeds give most of their trouble a little later when the young seedlings are coming on.

Spraying is very important. It should have been started in April to keep aphis from appearing on Roses and many of the shrubs. In order to head off attacks from this most bothersome family some form of tobacco spray must be used even before the young leaves begin to unfold. Then keep everlastingly at it.

If unposted woods are within reach, now is the time for gathering "May flowers" and enjoying the springtime with Nature. "May flowers" with most people is a comprehensive term applied equally to Hepaticas, Spring Beauties, Adder's Tongue, Bloodroot and all the little woods folk that bloom in early May.

Yes, this is the month to enjoy the woods filled with the dainty blossoms of early Spring but do please remember that neither May nor any other month is the time for the selfish destruction and extermination of wild things. If one loves Trailing Arbutus, as who does not, do not pull it up by the armful, roots and all, and then sit down and pick out the blossoms, casting aside great piles of the vine. Use scissors in the beginning, gather the blossoms with a reasonable length stem and leave the roots and vine for the future.

Conservation should be written on every brain and rooted in every heart. The generations to come have just as much right to the gifts of God as we, and may become developed so highly that they can enjoy them even more. Wilful destruction is only another name for selfishness which is a very unlovable trait in any one.

Spring Planting

THERE are so many things that must be done in the Spring that the temptation is great to leave everything possible *undone;* but of course the tender summer-flowering bulbs must be planted in the Spring and there are some other plants—notably Anemones—that can be moved successfully only in the Spring.

When we speak of tender bulbs we think instinctively of Gladioli and Dahlias, but these are not by any means the only bulbs to be planted in the Spring, though they can be put out earlier than most of the others.

Montbretias are gay and graceful flowers,—too small to satisfy devotees of the biggest and reddest, but very attractive and having a longer period of bloom than many other bulbous plants. They are reputed to be half-hardy perennials, and this may be true, for those grown by the writer some years ago lived through the first Winter, but died the second—a strictly fifty - fifty proceeding—in spite of careful protection. The only safe way is to set them out in May (not too early) and lift them after the first frosts, storing them in the same manner as Gladioli.

Another bulb which must be planted in the Spring is the Tritoma, or Flame Flower, as it is frequently called. Great improvements have been made in this flower in recent years and it now blooms early and freely, succeeding in any good garden soil, and responding gratefully to liberal treatment. Hardy farther South, but

THE UTICA GARDEN CLUB—*Continued*

should be lifted in Autumn in this climate, to insure safety, and kept in sand in a cool cellar.

Lilies may also be put out in the Spring; all varieties except the Madonna Lily, seeming to accept fall or spring planting with equal willingness. Caladiums, Cannas and Tuberoses, Dahlias and Gladioli are too well known to need more than passing notice, though it may be noted that it is well to start Cannas and Dahlias, and Tuberoses also inside, to promote earlier blooming. Gladioli may be planted at intervals to insure a succession of bloom.

Turning from bulbs to other plants, it may safely be stated that any fall blooming plants should be set out in the Spring; Anemones and Hardy Chrysanthemums being notable examples. These bloom so late that they have no time to grip the soil if moved after they have flowered, and if moved earlier the flowers must be sacrificed, so Spring is the only feasible time.

In dividing both these plants take the young roots running out from the old crowns as the basis for new plants, and plant in mellow and not too heavy soil. Most of the early flowering plants may be successfully divided or transplanted as soon as their blooming period is past; Primroses, Pinks, etc., making a new root growth soon after the flowers are gone.

In this connection it may be said that all experienced gardeners know that almost anything may be moved at almost any time if the distance is short and sufficient care is taken. So much extra care is necessary, however, to move plants at untimely seasons it is not worth while to do it except in emergencies. But of course you will take the chance rather than let a good thing get away!

ADELLA PRESCOTT

Bedding and Transplanting

BY M. DOROTHY HATFIELD

THE main object of flower beds is to produce an abundance of bloom in masses. Beds may be either formal or informal. The formal ones are suitable only in formal gardens and should be planned, both as to shape and contents, to produce a harmonious whole. For supplying a liberal amount of cut flowers for both home and friends, it is best, if possible, to use just plots in out of the way places; so that despoiling them will not detract from the beauty of the garden as a whole.

But whether formal or informal planting is used, the process of preparing the ground is identical.

The first thing to be done in making beds is to see that the ground is well drained; that the soil is mellow and can be readily crumbled or reduced to powder; and that it is fertile.

In the Fall it must have a mulch of rotted manure or leaf mold and if possible be spaded and left rough. This is especially good when the soil has much clay.

Make the flower beds as broad as possible so that the roots of the grass running from each side will not meet beneath the flowers and rob the beds of food and moisture. It is well to add a little common fertilizer each Fall or Spring.

Although it is well to emphasize making the ground fertile, it can easily be made too much so for some plants. In over-rich soil Nasturtiums will run to vines. Sweet Peas will also, and various other plants.

ONE common form of bedding or planting, is the hardy border filled with various perennials, and extending along either side of the garden path; or, in the average city lot, on either side of the lot along the boundary fence.

To produce the best effect in these borders plants should be set close enough together to cover the ground and the selection should be such as to insure continuous bloom.

Then there are the mixed flower beds which may be made up mostly of annuals.

Beds composed entirely of annuals are easy to prepare; as, after a killing away and the ground made ready for frost, the dead plants can be cleared another season. It is not so easy to cultivate and replenish the soil in closely planted hardy borders or beds. as the plants are always there and liable to be injured.

Annual beds should not be planted with the same varieties year after year. The soil lost during the growing season much of the special elements required for whatever the plants grew on, and something else should be planted another season.

Even liberal fertilizing will not insure success year after year without a succession or rotation of planting.

And a very wise plan would be to spray the soil in the Fall with formaldehyde to destroy both disease germs and insects.

IN RIBBON beds, flowers or foliage plants are arranged in ribbon-like lines of harmoniously contrasting colors. In such beds the tallest plants are placed at the back. If the bed is out where it can be seen from all sides, the tallest plants should be in the center. To keep them within proper limits, pinching or trimming may be done. Flowering plants should not be cut back at the top, so the habits of the plants must be known before planting.

Bringing contrasting colors together in masses, forming circles or other patterns, is called massing; and low planting, especially used to cover the ground under taller plants, is usually spoken of as carpet bedding.

Some bedding is very temporary in its effect. Especially is this true of the spring beds of bulbs. But these beds need not remain idle and unattractive during the rest of the season, as seeds of annuals can be sown among the bulbs to come on for mid-summer and autumn bloom; or seedlings can be raised in boxes and transplanted to the beds. This insures earlier flowering. In such beds the bulbs should be set deep enough not to be injured, and annuals with long top roots should be avoided.

IN TRANSPLANTING flowers, and all plants recently started from seeds, it is important that the ground be thoroughly fined and compacted.

Plants usually live better if transplanted into ground that has been freshly turned. If possible transplant in cloudy or rainy weather, particularly if late in the season. Firm the earth about the roots with the hands or feet in order to bring up the soil moisture and to set the plant firmly in place. Then it is wise to rake the surface to reestablish the earth and make the bed level and smooth.

Mulch unless the plants are too small. If the plants are taken from pots or flats, water them some time in advance. Pots can be set in water and allowed to become well soaked. Fill the hole, in which the young plant is to be set, at least half full with water. Allow this to partly run off before putting in the plant.

In taking up plants from the ground for transplanting it is advisable also to water them well some time before lifting them. The earth will then cling to the roots. But water far enough in advance so that the earth will not be muddy when the plants are removed.

If the sun comes out after transplanting, shade with newspapers fastened up with sticks, or some other shading device.

A shingle set by each plant on the sunny side is a good protection.

Migrating Flight of the Cosmopolite Butterfly

Migration of hundreds of the Cosmopolite Butterfly, the Vanessa cardui, beautifully marked creatures, was observed in Hemet all Saturday afternoon and part of Sunday. They followed one another a few seconds apart and in less than ten minutes fifty were counted. They were flying parallel to the Park Hill range of hills in a generally western direction.

The upper wings of this Butterfly are golden brown with black markings and white spots. The underside of the wings is marked with a rose colored band and a row of four eye spots. This Butterfly is one of the few migrating species. It is a strong flier, is found in

THE UTICA GARDEN CLUB—*Continued*

practically every country of the globe, and has even been discovered hundreds of miles out at sea. The caterpillar feeds on the leaves of the thistle, and the Butterfly enjoys the honey from the thistle blossom, running its long tongue down the separate flowers.

It will be recalled that some time ago the *Hemet News* published a similar account of the flight of the species known as the Painted Beauty. This Butterfly and the Cosmopolite are related and closely resemble each other in markings. The distinguishing marks are the row of four or five eye-spots under the hind wings of the Cosmopolite while the Painted Beauty has but two.

It was indeed a privilege to see the flight of the vast numbers of these exquisite tiny creatures, and will long be remembered.

DR. CLARA SMITH, (In *The Hemet* (Calif.) *News*)

Golf vs. Gardening

By WILL S. GUTHRIE

(In *The Oklahoma Banker*)

THIS thing called a hobby, fad, weakness, or whatever it is that causes me to delight in raising flowers as an outlet for surplus physical energy or a promoter of forgetfulness of business cares, I believe to be a direct outgrowth of the reconstruction period after the World's War.

Prior to that time, I had "fell" for that ancient and honorable game of golf. Following the allusive pill had me and had me strong. I served as Secretary and later, President, of the Oklahoma City Golf and Country Club, played games on nearly all Oklahoma courses and elsewhere. Played with Jim McCandless, Asa Ramsey, Tom Hartman, Claude Rorer, Bob Brewer, and several other then active members of the O. B. A., every one of whom was impregnated with the golf germ and I think most of these fellows are crazy about this hobby yet.

It was while playing with Asa Ramsey on the Richmond, Virginia, links, that the whole course of my life was changed, so far as recreation was concerned. If any man ever had the bug, Asa had it. He had it bad—thought he could play a crack club—probably thinks so yet. It permeated his whole nervous system. Had him goin' and comin'. Well, as I said before, it was while playing golf with Asa at Richmond, that I realized how dangerous a hobby golf is. Here is what happened: A wasp had built its home in Asa's golf bag. As we all know there are mental hazards on all well regulated golf courses, but Asa discovered there are physical hazards as well. When he attempted to draw his driver from the bag, anticipating a 200-yard drive, his whole nervous system was suddenly shaken. I vowed then and there never to play another game of golf and advised Asa also to quit.

About this time, the world was crying for food. War gardens were urged to help feed the starving nations. My golf clubs were exchanged for a hoe, rake and spade. Then for a year or two, I startled myself and the neighbors by raising high-grade onions, lettuce, potatoes and cabbage. It was a natural transition from garden truck to flowers. I started with a dozen each of Gladioli and Dahlias. These, to my mind, are the aristocrats of the floral kingdom.

It's a great sport, this "Glad" game or "hobby," if you want to call it that. This year I grew over five thousand spikes of Gladioli and raised more than fifty thousand bulbs, in over one hundred varieties. When in full bloom my "Glad" patch looks like the end of the rainbow—a riot of color.

I do not grow them in the lawn for landscape display, but plant long rows in the garden, eighteen to twenty inches apart, so they may be cultivated for the flowers, and it is here you get a double kick—a double pleasure. One has the joy of overcoming the difficulties that are usually encountered in Oklahoma soil and climate. One gets a world of satisfaction to say nothing of healthful exercise in seeing the different varieties develop and unfold their surpassing beauty of color in a multitude of exquisite shades and combinations. Then comes the greatest return of all, distributing rare blossoms to friends and seeing the pleasure it gives them. Distributing them to hospitals and churches adds some more.

In addition, I grow Dahlias in quantity. They come later in the season than Gladioli, and are at their best in October and November, and present a more difficult problem of cultivation. This year, I planted one hundred and eighty of these and lost more than half on account of hot weather. However, what survived, supplied perhaps five hundred rare blossoms, some measuring more than nine inches in diameter.

While Gladioli and Dahlias make up the largest interest in my hobby, I grow others coming into bloom before and after these two—Jonquils, Peonies and Hardy Chrysanthemums. We have home-grown flowers on our table almost every day between April 15 and November 15, besides great quantities taken to the bank.

I have no patience, but some pity for the man or woman who, after failure will declare they have no luck with flowers. It is not a matter of luck. It is simply a matter of intelligent care, a liberal use of the hoe and handplow and a desire to grow them just a little better than your neighbor. Exercise? Yes, plenty of it. Swinging a machie or niblick and climbing out of a bunker or stumbling through the rough does not begin to measure up—not by a long shot—with this flower-growing hobby. I plant Gladiolus bulbs in rows, by the thousands, beginning in February and at intervals of ten days until May 1. I sometimes keep a few bulbs in cold storage for planting about July 1, so as to have spikes in October. Plant four to six inches deep in good soil and cultivate with a hand-plow or wheel hoe, it's a great machine with which to do lots of cultivating in a short time—it takes the "ake" out of rake. I keep this wheel hoe right in sight—a sort of standing invitation to exercise whenever I need it and the flowers need cultivating.

The tired banker, after the day's grind, who will spend a couple of hours at the "Glad" game, can build up his physical condition, palliate his nerves, commune with nature, and worship God, all in the same operation.

Shrubs Worth Knowing

NEW shrubs make their way slowly into our gardens and it is years before many of the very deserving varieties appear except in rare cases. There is, unfortunately, a deadly monotony in the average shrub planting as unnecessary as it is in the perennial border for there is a great variety to select from and one shrubbery need not duplicate another to endless monotony as we so often see along city streets.

The handsome Spirea Van Houttei has been so numerously planted in many communities as to have become commonplace. Dogwoods have likewise been spread over the landscape much more numerously than their beauty justifies. The old common Lilac still prevails in ratio of hundreds to one of the fine new double and single French hybrids.

Of the shrubs, not strictly speaking, new, but unknown to the great majority of gardeners are the Quince berries or rock sprays as they are commonly known or botanically, the Cotoneasters, pronounced ko-tony-Aster, not cotton easter.

One of the hardiest and easiest grown of this genus which now numbers quite an extensive list of species is Contoneaster divaricata. It is a graceful wide spreading shrub which in a few seasons reaches a height of four or five feet with an equal diameter. Its chief beauty is its profusion of crimson berries in the Fall, something like miniature Thornapples.

The foliage of this bush is small, deep green and handsome at all times of the year and in the Fall takes on a beautiful ruddy tinge. The blossoms are small and inconspicuous but delicately beautiful on close examination.

The special grace of the bush lies in the arrangement of its branches which is known to botanists as dichotomous, that is, the secondary branches leave the main stem in the same plane, as the plume part of a feather leaves the midrib, giving a frondy effect. It is a rival of the Japanese Barberry, being more graceful.

It seems to prefer a well drained soil to wet, heavy locations and will thrive in quite dry situations.

A dwarf trailing variety is Cotoneaster horizontalis, a beautiful little shrub for making a bright ground cover or to droop over a rockery.

A number of species are now catalogued differing in the brilliancy of their berries and in the character of their growth. The two mentioned are well worth a trial and a welcome variety to the shrubbery.

Being a member of the Rose order, the Contoneaster is subject to plant lice which will attack its tender stems but they can be controlled readily by spraying with a nicotine insecticide.

SHERMAN R. DUFFY

Wayside Ramblings

INSPECTION OF NURSERY STOCK

The rules for inspection are so varied that it requires a pamphlet to classify them. Different plants are inspected for different pests, and the grounds are inspected for pests that would not attack, but might be transported by the articles intended to sell. Inspection costs are insignificant to a business of any size, but prohibitive of selling in a small way. So long as one sells only healthy stock, there is not likely to be trouble, but one does not always know that the stock is healthy, even when it is supposed to be.

If a person has much stock, even if little of it for sale, it might pay to have inspection, just for the information that might be gained, not only as to the cleanness of the stock, but how to recognize troubles if they do come and to care for them or avoid them. The service fundamentally is intended to be a helpful service, and a police function only when conditions require.

The older states in general are nowhere near so freakish in requirements as the newer states, nor the postal service. As to the postal service, however, and the transportation companies, much depends on the individual employees involved. Some postal and transportation employees will throw out or refuse any growing plant not covered by inspection certificate. On the other hand, there are large businesses carried on through transportation that do not use any certificate.

Greenhouse plants and nursery stock are supposed to be inspected. Some states include under these items everything capable of growth, except seeds, especially those states which charge fees from dealers or growers outside of the state.

Inspection does not cover a year, but to a certain date. The fee I think ordinarily is intended to cover merely the cost. Your own state official does the inspecting, and he can give the cost in your state. Write to The Nursery Inspection Department at your state capital or at your State Experiment Station. This department can also give information complete on the subject so far as concerns business within the state, and also outside of it.

BENJAMIN C. AUTEN

A CONVENIENT GARDEN LINE

Procure two stakes of same length, (about three feet), old broom handles are good. Sharpen one end of each, measure distances on each from the top down, six, twelve, eighteen, twenty-four and thirty inches and mark with white paint or colored pencil; this serves as a measure for the distances between the rows.

Get a good strong cord about four feet longer than the longest row that you can have in your garden, secure ends of cord to each stake, with small nail, or bore a small hole in stake and tie through hole. Either way prevents slipping on stakes as it is being wound up for shorter rows. Wind high on stakes for furrowing out the row, and low on stakes for planting. Measure space wanted between rows and move stakes over. Wind up together and put away with other garden tools. J. R. S.

SELECTING EVERGREENS

This may help someone to select evergreen trees for planting. In the Spring of 1918 I planted Colorado White Fir, Koster's Blue Spruce, Colorado Green Spruce, Hemlock, Weymouth Pine and Scotch Pine, in a mixed planting for a windbreak in a very bleak spot.

The Hemlock lived two years, and the Weymouth Pine and also native Spruces turn brown every Winter and lose their leaves so that they look dead until the new leaves grow again.

The Colorado White Fir, Koster Spruce, Colorado Green Spruce and Scotch Pine have never lost a leaf from the climate.

A. C. FERNALD, (Maine)

GLADIOLI DETERIORATING

I note what Mr. Woodruff says about varieties of Gladioli deteriorating, to all of which I demur. His selection of *Mrs. F. King* and *Augusta* as examples of so-called deterioration, in that they no longer throw out laterals or side branches, is rather unfortunate for his argument. I have grown *Mrs. King* for sixteen years and, except in one or two very dry seasons, they have made side branches aplenty and last year they outdid themselves in this particular. *Augusta* also makes side branches for me every year, sometimes to the extent of being a nuisance. I grow my own bulbs year after year and am not worried about varieties "running" out.

W. H.

I firmly believe we shall improve our human society by every effective step taken to promote the humane treatment of defenceless animals, and the protection of the weak and suffering.—*Warren G. Harding*

Some Summer Flowering Bulbs

BY T. SHEWARD

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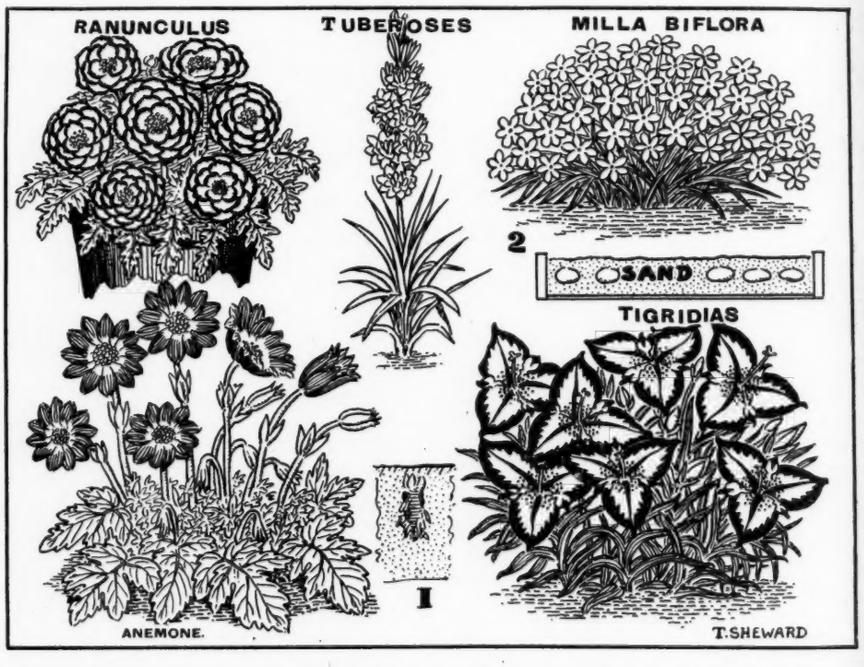
WHY not plant a few bulbs this Spring? They are very useful for filling bare spaces in the perennial border, where low growing spring-flowering plants have been flowering for the year. By planting summer-flowering bulbs in the same piece of ground, you will get another crop of flowers, instead of a bare patch all Summer.

There is a very wide selection of plants to choose from. There are the Anemones, Ranunculus, Tuberoses, Begonias, Gladioli, Tigridias, Zephyranthes, Montbretias, various Lilies, Watsonias, Milla Biflora, and many others. They are all easy to grow, and can be planted between spring-flowering perennials, as an after crop or in separate beds.

In the coldest parts of the Northern States they are taken up in the Fall and stored away in boxes of sand as at Fig. 2, until the following Spring, when they are planted again. Nearly all will increase rapidly, and if you wish, you can soon get quite a large quantity.

The way to plant Tuberoses is shown at Fig. 1.



Good Points of Clematis Paniculata

BY MRS. JOHN CLARKSON DARNELL, (Texas)

GENERALLY the first question after the new home is finished is what kind of vine shall be planted to furnish shade for the long veranda or the cosy side porch that shall hold mother's rocker, or the swing, and furnish ease for quiet moments in many a busy hour.

It has long been a subject of argument and opinion as to the best vines for this purpose as so many things are to be taken into consideration. Some have declared that no one vine will combine all the necessary good points and truly so, but I think there is one that will come very close to that if you will be careful to do your part.

It is the very well known vine, Clematis Paniculata. It will withstand the coldest weather; it will furnish shade in a very short time; it will wreathe itself in feathery bloom later in the season than any other vine; its snowy panicles of bloom give forth an exquisite fragrance; its seed pods are decorative all through the winter season; and it is adaptable to every need of porch decoration. Can one ask more than this of any vine?

For places where much privacy is desired such as the side porch in a city or town, and where a dense shade is welcome, one can do no better than to plant C. Paniculata. While its deep green leaves are small, yet they are borne in such riotous profusion, that a cool shade and almost complete privacy is assured. This can best be accomplished by a support of wire netting as a mat upon which it will soon form a complete wall of green.

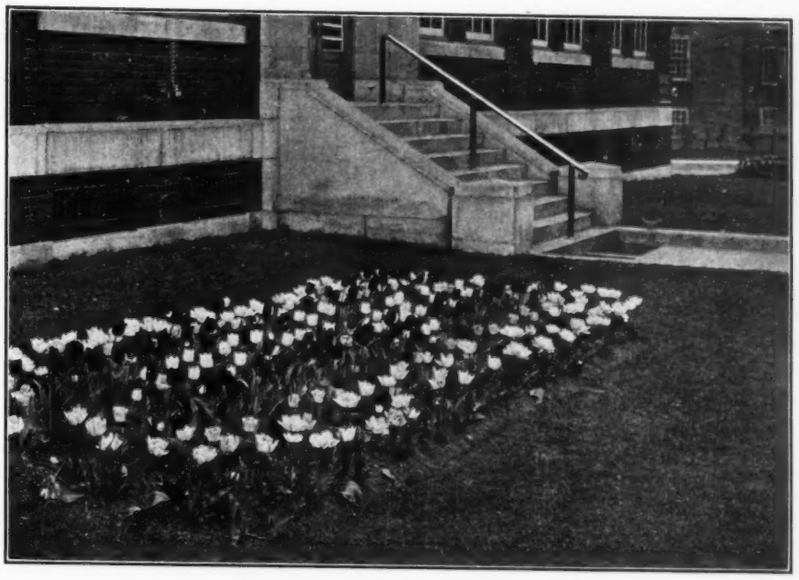
THIS vine is also adaptable to forming fancy shapes for the side of veranda or lawn. An immense star formed of it and kept closely guided to lines was a prominent attraction on a fine lawn I saw recently. As with most vines, it is decidedly one minded as to growth, and should be kept subservient to your wishes as with its rampant nature it will soon take "its own sweet way" unless you persuade it otherwise.

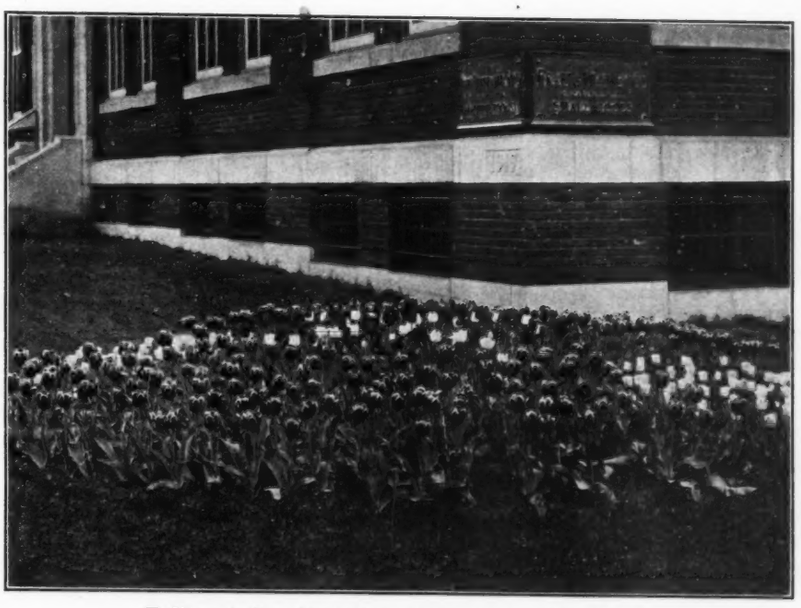
I well remember one old house where this vine grew at the end of a long bare porch. It had been neglected and left to itself for years and had wound and piled upon itself until it was a sad spectacle. Had this growth been guided and given proper support it would have been a beautiful sight for any season of the year, and would have redeemed the long bare uninviting porch into a cosy resting place. It would seem that the adage, "Train up a child in the way he should go" is very applicable to vines as well as children.

One of the most beautiful ornaments for the lawn formed of this vine was in one of our southern cities. A four by four standard had on its top (it may have been set that far down on the standard I cannot say) a hoop of four foot wire fencing with same kind of wire attached to sides, forming a hoop. This was strengthened by being attached to a crosspiece below hoop. At the time I saw the ornament it was a waving mass of snowy feathery bloom of C. Paniculata. It would be difficult to find a more novel and beautiful addition to any lawn besides the pleasing comment such always creates.

If you are just building that new "Castle for the Queen," or are thinking of adding new vines to the old veranda, by all means give the Clematis Paniculata a chance to prove its beauty and utility. Plant a root each side of the door to that lovely summer house you are thinking of building for the wife and daughters this Summer, and form the body of the house of fencing wire instead of lattice which is far more expensive and not so strong and durable a support for the vine. After having one on your side lawn you would not part with it for "much gold," and will maintain it because of its many good qualities.

Simple Floral Planting for Industrial Plants





Tulips at the plant of Bertram & Sons Co., Dundas, Ontario. Branch of Pratt & Whitney Co., manufacturers of small tools and machinery

Queries and Answers Department

Rotation for Gladioli

TO THE EDITOR:—

Will you please let me know why one should not plant Gladioli in the same place for more than two years? We sell Gladiolus bulbs, and one of our customers asked us this question.

F. J. H.

Answer:—Not only Gladioli but other plants do best if not planted more than *one* year on the same ground, and a three year rotation is probably even better than a two year rotation. There are several reasons why Gladioli should not be planted on the same ground two succeeding years; one of the most important, being the practical one, is that if any bulblets are left in the ground and remain unfrozen in the Spring, and the varieties are grown under name, the bulblets may grow where they do not belong and cause a mixture. There is the further important reason that rotating crops aid in keeping down various diseases; and a third reason that a crop planted successively in the same soil exhausts the particular fertilizing elements necessary for that crop; and the crop will not do as well the second and third years as it will the first year, generally speaking. Large and judicious applications of fertilizer, however, may overcome the last objection.

MADISON COOPER

Culture of Ivy

TO THE EDITOR:—

Will you inform me how and when Ivy can be grown? Also as to watering.

W. S.

Answer:—Ivy grows in almost any soil, but prefers a somewhat moist and rich loam, and a shaded position. Propagation is by cuttings of half-ripened wood at any time of the year in the greenhouse or in frames. In milder climates cuttings may be set in Fall and rooted in the open ground. In this latitude English Ivy is often badly sunscalded or even killed in Winter, so it is wise to give protection by covering with branches or litter as soon as hard freezing begins. Ivy suffers less on the north side of a building than when planted in an open sunny situation. As a house plant the English Ivy is of the easiest culture, doing especially well in a north window. The only rule as to watering is the same as applies to other house plants; water when needed. The soil should not become dry and baked, but give a good soaking, and then leave it to dry out naturally. Many house plants suffer from frequent small applications of water, which keep the surface sodden, without a sufficient application to the roots. (*Rural New Yorker*)

Seed Pods on Gladioli

TO THE EDITOR:—

It has always been my impression that one should not let Gladioli form seed pods, if good development was expected, but I notice one grower says to let them seed. Which method is correct?

J. A. B.

Answer:—It is not good practice to let Gladioli, or any other flowers, form seed pods, if the best results are wanted in the way of bulbs or development of new growth to give the best bloom in the future. Developing seeds clearly requires much fertility which would otherwise go into strengthening of new growth.

Questions and Answers Asked and Answered by Readers

Readers who can assist by giving general or special information will confer a favor on the inquirer, as well as the Editor. A brief statement of facts and definite information is desired.

QUESTIONS

SNAPDRAGON TROUBLE

Can any of your readers tell me what to do for my Snapdragons? They get covered with a kind of rust and die.

MRS. R. H. P.

REX BEGONIAS

A subscriber writes about trouble in growing Rex Begonias, stating that sometimes they rot and that sometimes they will grow a few leaves and then drop them. Suggestions from subscribers will be helpful.

STATICE OR SEA LAVENDER

A reader wants to know whether the Statice or Sea Lavender advertised in Seed Books is the same as that which grows wild in the salt marshes near Atlantic City. Will anyone who is familiar with this locality please reply?

IDENTITY OF FLOWER WANTED

A subscriber wants the identity of a flower, which he describes as a wonderful blue bell, growing in the rocks of the Au Sable River. He states that it is very delicate and bright, and that someone must have seen it and could probably tell what it is. He also states that he has some seed, but as he cannot supply the conditions under which the flower grows naturally, he wonders whether it is any use to plant it.

NAME OF ROSE WANTED

For the past year I have been trying to learn the name of a certain Rose. I have read different catalogues and also articles in THE FLOWER GROWER, but I am still at sea. I have seen it grown as a hedge, along driveways, and at other times planted along the walls of buildings. The bush looks just like the wild Rose bush, but the flowers are double. The real dark pink variety grows about six feet tall, the lighter pink only about four feet. They blossom all Summer long. The lighter one is the one I would especially like to know the name of.

K. D. CROWLEY

IDENTITY OF SNOWDROP WANTED

I have a clump of Snowdrops in my garden which much resemble Galanthus Plicatus, or Galanthus Elwesii, in appearance, with the exception that the flowers of my clump have a spot of yellow on the tip of each petal of the bloom, much like the green spot on the bloom of Leucojum Aestivum. If any of your readers can furnish me with the botanical name of this Snowdrop I shall be obliged.

J. H. B.

LAWN FOR NEW MEXICO

Here in Albuquerque we have a semi-arid climate with very long dry and hot spells without any precipitation for periods as long as thirty months, although that is not often. I want to put in a lawn this Fall and would like to know whether there is a grass with a fine, green blade and with a tendency to root deeply. The Blue Grass that is so pretty and that is used so much dries out in this climate and burns up. It does not root deeper than from two to three inches so that the dry winds work havoc with it. All water must be sprinkled and as the rates are high a grass with a deeper root would make it much less expensive for then we could use some capillary water. The Bermuda Grass does very well here, except that it dries up and always looks yellow. Besides the blade is very coarse and wiry. It does not cut well to give a nice appearance. Do you know of a grass that is called the New Zealand Blue Grass? I have heard that it roots deeply, and will withstand droughts well, and yet it is of a fine blade.

Any information that you can give me that would help me solve this problem would be gratefully received by every one here as we all have trouble keeping our lawns looking green and growing.

S. A. C.

CROSSING IRIDACIA

It is claimed that successful crosses have been made between Babiana Sulphurea, Babiana Plicata, Ixia Polystachya and others. As I have never heard of such crosses I have wondered if others have done the same. Naturally I have wondered if any one has ever attempted a cross with Montbretias, and if it can be successfully done? S. T. W.

ANSWERS

PHOTOGRAPHING FLOWERS

As to photographing flowers, the best photos of my Peonies, and scores of others equally good, were taken with the cheap Kodak resting on the knee of the lady using it. Carefulness, with experience is the secret, same as with the professional.

"If at first you don't succeed, Try, Try again." MRS. SARAH A. PLEAS

MEALY BUG ON FERNS

Answering "H. J. C."—If the Ferns are infected with Mealy Bug, which may be readily recognized by a whitish covering on the insect, they will need a dipping, using Fir Tree Oil, diluted according to directions, or Lemon Oil, holding the plant over the bucket or tub and dipping the foliage only. For the greenhouse a safe remedy for keeping down aphis, and which will not harm the fronds, is to vaporize once a week, using Vico Fume Liquid.

THOMAS COLL

PROPAGATING BUDDLEIA

Sometime ago one of your readers asked about propagating Buddleia, (Butterfly Bush). I have taken little branches in the Spring when they were two to three inches long, taking them

from the plant where they were crowding, and put them in water, where after two weeks they had long roots. Last year this plan did not seem to produce results, but early the past Winter I pulled some shoots before they froze and just stuck them into a flower pot with other plants and now, (March 19), they are growing like weeds, and are about a foot high. My experience is that Buddleia is one of the easiest shrubs to root.

MRS. F. C. K.

MAKING CRINUMS BLOOM

The first question in March FLOWER GROWER on page 122 is by "Mrs. C. L. L." about making Crinums bloom. Now there is as much difference in Crinums as there is in Rose bushes.

Some will grow and bloom anyway and some you can nurse and nurse, and then you will fail and lose them.

There seem to be an unnumbered amount of varieties. Some are short bulbed and some are enormous.

Pedunculatum will have leaves four or five feet long, if well grown, and a bulb like a good sized stump.

Kunthianum is about as satisfactory as any used as a Summer-flowering bulb, wonderful umbels of good sized pink blooms with white stripe in petals.

"Mrs. C. L. L." has probably one of those tender varieties that are a delusion and a snare.

NEWTON J. PECK

AMARYLLIS OFFSETS

In answer to inquiry about removing the offsets from Amaryllis: I have found in my experience that it is best to leave the offsets on the old bulb until they have gotten some size, they then are stronger and grow faster when they are removed. Also that it does not make any difference about their having been taken from a blooming bulb, though the bulb that is slow in blooming will naturally have offsets that will be slow too.

It is better to leave all the offsets on until the pot gets so full that repotting is necessary. The pot bound plant is the better bloomer, as having taken up all the space for growing the bulb, turns to other activities and begins to form buds.

There is, of course, a great deal of difference in bulbs, some proving earlier than others and if seed is saved from these early blooming varieties one usually has a good percentage of early bloomers like the parent bulb. After a bulb has finished blooming is the best time to remove the offsets.

EVA KENWORTHY GRAY

DISEASE ON HARDY PHLOX

A few months ago I noticed an inquiry about what to do with Phlox that seemed to be affected with some disease.

This was no doubt the work of red spiders, for they do not injure plants when we have seasonable rains.

My remedy for treating the plants is to mix one pint Black Leaf 40 with fifty gallons of water and apply the mixture with a spray pump.

Dry sulphur can be scattered under the plants on sunny days with good effect.

Spraying with water in the evening, and thoroughly wetting the plants on the under side of the leaves is a great help, for the red spider has as much aversion to water as some people have to the eighteenth amendment.

Another thing about Phlox is that they do not like dry weather, and should be thoroughly watered in dry spells.

W. E. FRYER

ANSWERS TO ROSE QUESTIONS

My answer through your Queries and Answers department to "Mrs. A. A. J." and to "Mrs. C. S. Polk" is, first, that mildew can be combatted by anyone who cares to read the voluminous current literature on the subject. The last word is an ounce of baking-soda and a gallon of water, freely sprayed on the plant. Perhaps the best word is the use of the sulphur-arsenate dust previously mentioned in THE FLOWER GROWER, which includes the taking of nine parts of dusting sulphur and one part of powdered lead arsenate, mixing these substances, and then blowing the mixture on the Roses while wet with water or dew, thus combatting both mildew and black-spot.

I do not know what the trouble is with the *Dorothy Perkins* that turns yellow and drops its buds in part only, though it sounds suspiciously as if these were old shoots that ought long ago have been cut out. It is a perfectly safe thing to remove, immediately after the bloom is over, all or nearly all of the present year's shoots of *Dorothy Perkins*, allowing next year's bloom to come on the young growth which arises this year from the roots.

J. HORACE MCFARLAND
Editor *American Rose Annual*

Caught in a Springtime Blizzard

(Continued from page 179)

as are the stout legs of the Robin. Consequently, as soon as a bird had pulled a worm about half out of its hole, the strength would leave its legs, it would be forced to "give" to the worm a bit, and the worm would quickly seize the opportunity to wiggle far down into the soft earth. In the two days that the Killdeers were about the house almost all the time, I saw but two worms successfully landed, though dozens of attempts were made.

A slight movement at a window always sent the Killdeers into the air with the most plaintive scream I have ever heard. "Oh, dear, dear, dear, dear, dear" they seemed to cry as they spread their wide sea-bird-like wings and circled away from the suspected danger zone to which, however, they returned in a very few minutes.

The Bluebirds, who heretofore had not left the orchard, made several visits. These spring arrivals were not the familiar chestnut-breasted Bluebird of the East, but the Mountain Bluebird, a bird with beautifully shaded upper parts of blue, but with a breast of soft grey. Yet, watching them from a distance, one knew at once they were of the Bluebird family.

Pheasants grew friendly; Flickers were glad of a bit of grain; even the Lewis's Woodpecker discovered a crust of bread in the snow and made repeated excursions to it, always leaving in the soft snow the trail of his long, forked tail. One queer little Sparrow, marked with golden brown stripes, appeared often with the Juncos who never seemed to pay the slightest attention to us. How it came to be here, all alone, was a mystery. Another lone little bird whose acquaintance I was delighted to make was Audubon's Warbler. I saw it first intently searching the bark of a tree for food, quick, active, happy, in spite of deep snow on the ground and the raw wind that was blowing. At first I mistook it for the Myrtle Warbler, but, on closer investigation I discovered that the throat of this bird was yellow, rather than white, a marking which at once distinguished it from the Myrtle Warbler. Again I wondered how one lone little bird should be abroad on such a day.

The Finches were strangely absent. The friendly little pair who for weeks had been singing to us from the Poplars and the Apple trees disappeared completely. Where were they? And where are they? The warm days have returned; the snow is gone save where the deepest drifts were piled; the Killdeers keep close to their irrigated pasture; the Meadowlarks no longer venture into the yard, and four Robins are the most to be seen at any one time. Other birds have arrived. There is a Crested Flycatcher which perches on the telephone wire outside my window and wakens me with his call each morning. There are the Mourning Doves answering each other from distant trees with their sad, sweet "coo a-coo-coo-coo." The Yellow-headed Blackbirds have joined the Redwings. The still leafless treetops have been dotted with tiny feathered balls of golden yellow—dozens of sweet-voiced Goldfinches. But the House-Finches have not returned to the nest-building over which they worked so happily before the storm. Is it possible that they fell victims to the springtime blizzard?

BOOK REVIEWS

THE AMERICAN ROSE ANNUAL. Edited by J. Horace McFarland. Harrisburg, Pa. Price $3.00, including annual membership in The American Rose Society, Robert Pyle, Secretary, West Grove, Pa.

This book is easily the outstanding feature of the Rose literature of the year. Not only is the book well printed and well illustrated, but it is useful and practical withal. The fact that J. Horace McFarland edits this book each year, and the fact that he is in correspondence with Rose lovers in all parts of the world, guarantees that the *American Rose Annual* is up-to-date, practical and complete.

This year the Annual consists of two hundred pages, rather closely printed, and with many illustrations, including a color print of the new Rose *Mary Wallace*. There is an index, making the subjects quickly accessible and in addition to a large number of useful articles of considerable length, there are many Rose notes at the end of the book, covering a great variety of subjects.

Articles by Dr. Mills, President of the American Rose Society; E. H. Wilson, of the Arnold Arboretum; L. C. Corbett, of the U. S. Dept. of Agriculture; Prof. Fraser, of the Department of Plant Breeding, Ithaca, N. Y.; and a large number of both professional and amateur Rose growers in many sections of the country; make the 1924 *American Rose Annual* a mine of information about Roses.

The Editor of THE FLOWER GROWER is one of the contributors to the 1924 Annual with an article entitled "Some Aspects of Winter Protection," considering the subject from a different viewpoint perhaps than ever before.

The same general subject is also covered by Dr. Harvey, of the University of Minnesota, and G. A. Stevens of Cleveland, and there is a brief note on "What Roses are Really Hardy," by J. H. Nicolas, of Indianapolis.

Altogether the *American Rose Annual* for 1924 is not simply worthy of a place on the table of any Rose lover, but is altogether a necessity to anyone even slightly interested in Rose growing and easily worth the membership fee which includes a copy of the Annual without extra cost.

MADISON COOPER.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, Etc., OF THE FLOWER GROWER, published in accordance with the Act of Congress of August 24, 1912:

Publisher, Madison Cooper, Calcium, N. Y.; Editor and Managing Editor, Madison Cooper, Calcium, N.Y.; Owner, Madison Cooper, Calcium, N. Y.

Known bondholders, mortgagees, and other security holders holding 1 per cent or more of total amount of bonds, mortgages, or other securities: None.

(Signed) MADISON COOPER

Sworn to and subscribed before me this 27th day of March, 1924.

(Signed) EDITH C. RYAN, Notary Public,
[Seal] Jefferson County, N.Y.
Commission Expires March 31, 1925.

Help Wanted

As explained in the February issue of THE FLOWER GROWER, and again in the March number, it is probable that there will be an opening in this office most any time for anyone with suitable qualifications. But it must be explained that THE FLOWER GROWER has no "inducements" to offer. The inducement to come here and take a hand in building THE FLOWER GROWER should consist first in the right kind of confidence in the publication itself, and secondly in the desire to serve the clientele of THE FLOWER GROWER. The question of remuneration must be altogether secondary, and anyone with high ideas of their requirements in the way of salary need not apply.

With the natural growth of this publication there will always be an opening for the right sort of a person. This person must first of all have a desire to serve and not simply a desire to fill "a position." We have no definite position here which needs filling, but a person with ability can make his or her own position, and he or she will be given the opportunity to do so.

MADISON COOPER

Bailey's Cyclopedia of Horticulture should be in the hands of every student of floriculture or anyone who is interested in studying about growing vegetable life of any kind. Send for a prospectus and terms of monthly payment plan.

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Surplus Issues of The Flower Grower For Sale

We have a few surplus issues of THE FLOWER GROWER, a few from each year, 1918, 1919, 1920, 1921, 1922 and 1923. There are but few months available of 1922 and not many of 1919; more of the other four years.

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Old Horticultural Books and Magazines Wanted

The Editor wants useful publications along similar lines to THE FLOWER GROWER, also books treating on floricultural subjects. Issues may be bound or unbound. Those having such which they will dispose of at reasonable rates will confer a favor by communicating with the Editor, Madison Cooper, Calcium, N. Y.

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